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ILLINOIS Medical Journal

The Official Organ of the State Medical Society

Monthly Under Direction of the Judicial Council.

Printed by
THE ILLINOIS STATE JOURNAL COMPANY.

Entered in the Springfield Postoffice as Second-Class Matter.

Volume LI. New Series, Vol. III. Number 4. | Springfield, Ill., September, 1901. | Subscription, $3 a Year. Single Copies, 25 Cents.

IMPORTANT REPORT OF LEGISLATIVE COMMITTEE IN THIS ISSUE.

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The Illinois Medical Journal.

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Vol. LI. New Series, Vol. III. No. 4. | Springfield, Ill., September, 1901. | Subscription $3.00 a Year.

URIC ACID FALLACIES.*

BY FRANK BILLINGS, M. D., CHICAGO.

In 1847 Sir Alfred Garrod discovered uric acid in the form of a sodium compound, in the blood of a patient suffering from gout.

Since that time various theories have been advanced by many observers concerning the source, the pathology and the effects of uric acid.

Many of these theories have been exploded by the more exact methods of clinical and laboratory examinations of recent years.

Exploded theories are, however, not abandoned at once by the whole profession. Theoretic absurdities, it matter not how inconsistent, are preserved and added to by the least well informed in the profession. Furthermore, the theory which was accepted at one period by the medical profession becomes at a later period the theory and property of the laity.

Therefore, to-day we find the most absurd theories existing concerning the effect of uric acid.

Practitioners ascribe to uric acid all sorts of diseases, morbid changes and symptoms. It not only produces the classic gout but headache, rheumatism, neuritis, meningitis, myalgia, hepatitis, nephritis, neurasthenia, arterio-sclerosis, insanity, acid blood (uricacidemia) depression of spirits, extreme modesty, want of self-reliance, moodiness, irritability and bad temper, unusual mental brightness, skin eruptions, pharyngitis, gastritis, enteritis, bronchitis, asthma, hysteria and many other morbid changes and symptoms. These conditions are ascribed to the effects of *uric acid as a poison*. The literature of the past and present is full of articles treating of the above named diseases and symptoms due to uric acid.

In practice it is a common remark of the practitioner that the patient suffers from uric acid poisoning and the usual reason given for the opinion is that there is uric acid in the urine.

Sometimes the opinion of the presence of uric acid is based upon the fact that there is a deposit of uric acid or of the urates in the specimen of urine. This is interpreted as meaning an excess of uric acid voided and therefore an over normal amount in the body.

An excess of uric acid is also believed by many to be present when a dark ring forms at the junction of the urine and cold $H.\ N.\ O._3$ in a test tube.

I have frequently heard a practitioner remark, when questioned concerning the condition of the urine: "There is no sugar nor albumin, but it contains uric acid." Still others would say: "no, I haven't examined the urine, but it looks dark and I believe it contains uric acid."

I feel justified in saying that this absurd proposition of the presence of an excess of uric acid in the body based upon the presence of uric acid in the urine, is stated to me every day by practitioner or layman.

Indeed among the laity it is the almost universal belief that a joint pain, myalgia, neuritis, neuralgia, etc., are due to uric acid. As stated above, the layman's belief of to-day is the discarded theory of the profession of twenty or more years ago.

Unhappily that part of the medical profession who still believe in the uric acid theories of by-gone years, teach and foster the belief in the laymen. How often does one's patient say: "my doctor says I have uric acid."

There is another equally absurd belief

* Address on Medicine, Illinois State Medical Society, May 22, 1901.

concerning uric acid in the urine indicating the chemical reaction of the urine and therefore the reaction of the blood.

How many practitioners tell the patient "your blood is acid, you have uric acid poisoning." Patients frequently say "my blood is acid." To the question how do you know? they answer, "I have uric acid in my urine."

After an uranalysis the patient is most inclined to ask, if he inquires about the urine at all, "did you find any uric acid?"

The quotations cited are but a few of the many absurd inconsistencies which one hears daily about uric acid.

What do we know of uric acid to-day? Unfortunately our knowledge is not yet full and exact. It is rather negative than positive. We know definitely that many of the theories which were formerly believed are not true.

Uric acid is dibasic with the formula $H_2(C_5H_2N_4O_3)$ that is, it has two H. atoms which may be exchanged for two mono metal elements.

Three forms of salts or urates may occur. (1) The two atoms of H. may be saturated with Na. forming neutral sodium urate ($Na_2C_5H_2N_4O_3$)

(2) The monometal may displace but one atom of the H. ($NaHC_5H_2N_4O_3$) forming a biurate of soda.

(3) A monometal may take but one fourth of the displacable H of two molecules of uric acid ($NaHC_5H_2N_4O_3HC_5H_2N_4O_3$) forming a sodium quadriurate. *Uric acid cannot exist as such in the blood.*

Of the three salts the neutral urate cannot exist in the organism and therefore does not take part in the pathologic changes associated with uric acid.

Sodium quadriurate is the form in which uric acid exists in solution in the blood and fluids of the body. It is easily soluble and is unstable and in the blood may unite with the sodium carbonate of the blood and form the biurate which is stable but not easily held in solution. If in excess, it may be deposited in the crystaline form in joints and other structures.

Uric acid may, therefore, exist in the body in the two forms named, the soluble but unstable quadriurate and the less soluble but more stable biurate.

As the quadriurate, uric acid has been found in the blood of man by many observers. Garrod discovered uric acid in the blood during gouty seizures in 1847 and many observers have confirmed his observations since that time. An excess of uric acid has also been found in the blood in chronic nephritis. In chronic lead poisoning, by Garrod, Klemperer and others. In diseases with leucocytosis like pneumonia by VonJaksch and Solomon and in leukaemia, pernicious anaemia, splenic anemia, in conditions of dyspnoea associated with cardiac and pulmonary disease, by Von Jaksch, Klemperer, Bartels, Borlaud, Horbaczewski and others. In most, if not all the diseases named, except gout, there was present a leucocytosis and the amount of uric acid present was equal to that found in gout.

As the stable but less soluble biurate, uric acid may be found deposited as excretions in the cartilage of joints and the ear and in the various organs of the body.

When dissolved in the body fluids uric acid is therefore always found in the form of the quadriurate.

In this form it is very soluble and at the same time very unstable. When in contact with sodium carbonate in the fluids of the body the biurate is formed. This compound is, as stated, very stable and not very soluble so that when formed in excess in the blood or fluids of the body, precipitation occurs in the form of needle-like crystals and concretions are formed in the cartilages of joints and in the organs where the precipitations takes place. The effect of the quadriurate in solution in the blood and of the biurate as a solid in the tissues will be discussed later.

THE ORIGIN OF URIC ACID.

As uric acid is made up largely of N. it was long believed to result from an incomplete oxidation of the proteids in the liver. That it was an antecedent of urea and therefore occupied an intermediate stage in the formation of urea. This was supported by the fact that uric acid could be further oxidized in the laboratory into urea and other elements. Again it was known that in birds and serpents the excretion of the nitrogenous waste was in the form of ammonium quadriurate. The slow respiration and low bodily temperature of serpents was cited to explain imperfect oxidation and the consequent formation of uric acid instead of urea in these animals. This example of the imperfect oxidation in reptiles to explain the formation of uric acid in place of urea was overthrown by the fact that birds whose bodily temperature is higher than that of mammals and whose respiration is rapid excrete uric acid in place of urea.

It has long been believed that a diet rich in animal proteids would produce an excess of uric acid. This is not wholly true for in the healthy individual a rich nitrogenized diet of either vegetable or animal food will lead to like results; the formation of more urea but with but little change in the amount of uric acid excreted.

It is the amount of proteid, not the source of it, which effects the amount of nitrogenous waste and that has been proved in the healthy individual to effect the urea more than the uric acid.

Many clinicians have confirmed the observation of Virchow that gouty concretions may form in individuals upon a diet poor in animal proteids. In the lower animals it has been shown that the production of uric acid is not dependent upon the diet, wholly. In the urine of the carnivorous quadrupeds the uric acid is very small in amount while the urea is large.

In the carnivorous reptiles the nitrogenous waste of the urine is wholly uric acid. Graminivorous birds excrete uric acid and no urea while the herbivorous animals excrete urea chiefly and but little uric acid.

The investigations of Garrod and Luff show pretty conclusively that uric acid does not exist in the blood in health. Urea on the other hand is always present in the blood. Garrod concludes that in birds and other uric acid excreting animals the metabolism of the tissues is exactly the same as in mammals. He believes that urea is the ultimate product of metabolism and that uric acid is a subsequent product of the union of urea with some other principle, glycocine being one of them. He regards the kidney as the organ whose functions it is to manufacture uric acid from nitrogenized products brought to it in the blood.

One of the arguments against the formation of uric acid in the liver, spleen and connective tissues is that it is never present in the blood of mammals and birds in health. Even in birds Garrod and Luff have shown that urea and not uric acid is present in the blood in health. As the excrement of birds contains uric acid and not urea, it therefore seems probable that urea is one of the sources of uric acid and that the formation of uric acid is effected in the kidney.

Latham's explanation of the formation of uric acid in the kidney is that the amido bodies, glycocine, taurine, leucine and tyrosine are normally converted in the liver into urea. If from any cause the metabolism of glycocine be interrupted, there would be present in the liver urea and glycocine. The union of glycocine and urea would produce hydantoic acid and then hydantoin. Hydantoin is freely soluble and would pass in the blood to the kidneys and then unite with urea and form an ammonium salt of uric acid. The imperfect metabolism of glycocine is, accoding to this theory, the primary and essential defect in connection with the abnormal formation of uric acid in the human body. The following equa-

tion shows how uric acid may be formed from glycocine and urea.

$$3\,C.H_4N_2O + C_2H_2(NH_2)_2O.O.H = C_5H_4N_4O_3 + 3\,NH_3 + 2\,H_2O$$

urea — glycocine — uric acid

Horbaczewski produced uric acid by the reaction of urea with glycocine.

Glycocine is a product of metabolism in the human body and is probably one of the antecedents of urea. In man glycocholic acid passes in the bile into the intestine, where it is broken up into cholic acid and glycocine. The glycocine with taurine, leucine and tyrosine pass in the portal blood to the liver and are probably mainly converted by the liver cells into urea. Many experiments have confirmed the view of Garrod, Luff and Latham that glycocine is concerned in the production of uric acid. That the conversion of urea into uric acid by the agency of certain kidney cells is possible and that the conversion is effected by the union of urea and glycocine.

The relation of the liver to diseases associated with uric acid excess has long been noted. If uric acid is found in the kidney from glycocine and urea brought from the liver and if glycocine occur as the result of imperfect liver metabolism, it can be readily understood how disturbances of the liver may effect the formation of uric acid. These views tend therefore to regard the liver as the seat of production of the antecedents of uric acid (urea and glycocine) the final conjugation of these bodies taking place in the kidneys with the resulting production of uric acid by the kidney cells.

Dr. Haig claims that uric acid has two sources: (1) that which is formed in the body from the nitrogenous food, (2) the uric acid which is introduced ready formed into the body, in certain articles of diet. He considers that flesh diet increases both the introduction and the formation of uric acid. His views of the formation and of the methods of increase of uric acid in the body are opposed to scientific facts. His methods of estimating the presence of uric acid in food and in the fluids of the body are faulty. His views are mentioned only because his book on uric acid has found a wide sale in the United States and his views are often accepted and quoted by practitioners and writers.

Haig advances the theory that normally there is a constant normal ratio of 1 to 33 between uric acid and urea. If the uric acid excretion falls below this ratio it means the retention in the body of uric acid, either in solution in the blood or deposited in joints or the tissues of organs. On the other hand, an increase in the ratio of uric acid to urea means the washing out of the deposited uric acid. No other observer has been able to corroborate Haig's claim of a constant normal uric acid, urea ratio or that any deviation from this ratio is an abnormal condition. Competent observers agree that the ratio of uric acid to urea is on the average about 1 to 45 and that deviation from this ratio may be produced by alterations in diet without effecting the general health.

URIC ACID FORMED FROM NUCLEIN.

In 1891 Horbaczewski showed that uric acid and the alloxur bases, the xanthin bodies could be produced from leucocytes. From a mixture of spleen pulp and blood heated to the body temperature in the presence of air for several hours he obtained uric acid. This led him to look for its ultimate source which he found to be the nuclein of the leucocytes and tissue cells. The process of the production of uric acid from nuclein was oxidation. When the nuclein was heated and the air excluded no uric acid was formed but the alloxur bases xanthin, hypoxanthin guarin, paraxanthin and ademin were formed instead. Complete oxidation of nuclein therefore yields uric acid. Incomplete oxidation results in the formation of the alloxuric bases. Furthermore he was able to convert nuclein into either uric acid or the xanthin group by different degrees of oxidation, but both uric acid and the alloxuric groups could be converted or further oxidized into urea. The close rela-

tion of uric acid xanthin and hypoxanthin is shown by a comparison of the formulas.

$C_5 H_4 N_4 O_3$—uric acid.

$C_5 H_4 N_4 O_2$—xanthin.

$C_5 H_4 N_4 O$—hypoxanthin.

While nuclein may yield under different degrees of oxidation uric acid and the alloxuric bases, both of which may be further oxidized into urea, the alloxuric bases can not be oxidized or converted into uric acid nor can uric acid be converted into the xanthin bases.

Nuclein metabolism is therefore the source of the uric acid groups or alloxuric bodies. If oxygenation is sufficient uric acid is formed; if incomplete, the xanthin bases are formed.

Where in the body does this oxidation take place? Preponderance of evidence points to the kidney, although this has not been fully proved. If Garrod and Luff are correct in the statement that uric acid is not present in the blood in health, it would practically settle the question by excluding all organs and tissues but the kidneys in the process.

The formation of uric acid becomes a pathological factor when the normal metabolism of the body nucleins becomes excessive or oxygenation of the nucleins becomes deficient. In either event the formation of uric acid will be relatively deficient while the alloxuric bases will be correspondingly increased.

Horbaczewski's discovery of the source of uric acid and of the alloxuric bases and of the relation of uric acid and of the xanthin bases to urea is recognized and probably accepted by most scientists. There are however good investigators who accept Horbaczewski's theory but believe that uric acid is formed in addition by the kidney from urea and glycocine.

The main fact of pathological importance in the discovery of Horbaczewski is that the alloxuric bases result from incomplete oxydation of the nucleins. That the alloxuric bases have a decided toxic effect and that upon the resulting lesions produced by them depends much of the pathologic results of uric acid.

THE THEORIES OF GOUT.

The fact that uric acid in the form of the quadriurate exists in excess in the blood of individuals suffering from gout has been already noted.

Garrod and Roberts are the exponents of the view that gout is due to the excess of uric acid in the blood and that the paroxysm of gout is due to the mechanical effects of the deposition of the crystaline biurate in the joints and body tissues. The presence of the crystals in the tissues provokes the inflammation. Roberts is of the opinion that uric acid does not possess any especial poisonous properties and that as long as it remains in solution in the blood and body juices it produces no ill effects. He also believes that the manifestation of irregular gout is due to the urate deposits into the connective tissue and fibrous structures of the organs.

There are, however, writers who contend that the soluble uric acid compound while circulating in the body fluids acts as a poison, producing symptoms of depression, sleepiness, want of energy, headache, etc., etc. That the attack of gout is due to the deposition of crystals of the biuriate which mechanically irritates and inherently poison the tissues and produce the characteristic gouty joints.

Ebstein was the first to advance the theory of a preliminary necrosis of tissue before the deposition of the uriate crystals in an attack of gout.

He assumed that the primary irritant was the neutral sodium uriate in solution. That the first step in the gouty process was the stasis of the lymph stream in the tissues followed by infiltration of the tissues in circumscribed areas by the lymph containing the neutral urate in solution. The neutral uriate acts as a chemical irritant and local necrosis results. The process of necrosis results, Ebstein claims, in the formation of an acid which reacts upon the neutral uriate and converts it into the

acid uriate (biuriate) which is then deposited in the necrosed area in the crystaline form.

Cutler believed that gout depended upon an affection of the nervous apparatus; Duckworth accepts the view that uric acid has some relation to gout but believes that gout depends upon a functional disorder of a definite tract of the cerebro spinal system, probably situated in the medulla oblongata.

The disturbed nervous influence is believed to act in two ways:

(1) By some trophic disturbance of the joints.

(2) By a disturbance of the liver metabolism through central nervous influence with the resulting over-production of uric acid.

Sodium biurate is very sparingly soluble in the blood. At blood heat the amount is about one part in 10,000. The lessened solubility is due to the saline ingredient of the blood serum. The sodium salts especially diminish the solvent power of the blood serum. The proportion of sodium salts is greatest in the fibrous tissues and Roberts believes that the presence of the sodium salts in relative excess in these structures determines the precipitation of the biurate in those structures. The deposition is further encouraged by the sluggish circulation of fluids in the fibrous structures. Nervous influences which are of a depressing kind influence the deposition of the urates by probably depressing the excretion of uric acid by the kidney with a resulting accumulation of quadriurate in the blood.

Chronic lead poisoning has long been known to influence the deposition of gouty deposits. Furthermore chronic lead poisoning produces invariably chronic paranchymatous nephritis. Defective kidney excretion follows with resulting gouty depositions.

Levison states that granular atrophy of the kidney is always a precursor of gout. Chronic nephritis associated with gout has long been acknowledged. The gouty kidney has been attributed to the effect of uric acid. The urates in excess in the blood has always been looked upon as the cause of the kidney condition. Luff and others believe the increase of urates in the blood is due to the deficient kidney action and that a pre-existing nephritis or degeneration of the kidney exists.

An injured joint has been noted as an antecedent to the deposit of the biurate in a gouty individual. This is probably due to some impairment of the tissues or to the presence of microorganism in the injured tissue which determines as foreign bodies or because of some secretion in the tissue the deposit of the biurate. Thus after an acute arthritis of rheumatic gonorrheal or traumatic origin a gouty deposit may occur. A diminution of the alkalinity of the blood has been believed by many writers to be a cause of the urate deposit. Haig bases his pathology and therapeutics chiefly upon the degree of alkalinity of the blood.

Luff has shown that the degree of alkalinity of the blood has no effect upon the precipitation from the blood of the biurate or of its resolution from the tissues.

Luff has also shown that the effect of the so-called antilithic treatment by means of the salts of sodium, potassium and lithium have no solvent effect upon urate deposits, nor do they prevent the deposition of the biurates from the blood.

IS URIC ACID TOXIC?

Experiments made with uric acid by feeding it and by daily injections into the bodies of animals have been negative. No toxic effect has followed the use of very large doses. The continued use by injection has not been followed by tissue changes of any kind in the vascular system or in the organs of the body.

In leukaemia and other blood disorders when the kidneys are healthy uric acid as a quadriurate may be often found in excess in the blood and yet no symptoms result as long as excretion is fully carried on by the kidneys.

Its chief pathologic effect is apparently that under certain conditions it may form

concretions in joints, in organs such as the kidney producing calculi or in other organs causing irritation by mechanical means alone.

To what must we attribute the conditions which have been in the past assigned to uric acid?

In 1884 Gaucher discovered that the injection of small quantities of xanthin and hypoxanthin into the bodies of healthy animals produced marked changes in the cells of the kidney. Kolish and Tandler confirmed these experiments. Rachford and others have demonstrated that the xanthin bases will produce many nervous phenomena with increased arterial tension, arterio sclerosis, etc., etc.

Croftan has shown conclusively that degenerative changes occur in the kidney effecting the epithelium of the tubules and of the capillaries of the tubules after the hypodermic injection for months of small doses of xanthin and hypoxanthin.

Sufficient evidence has accumulated since the discovery of Horbaczewski to make it appear probable that to the alloxuric bases and not to uric acid are we indebted for the chief clinical conditions which have in the past been attributed to the toxic effect of uric acid.

Alfred Crofton has very ably expressed the present status of the theories advanced concerning the neucleinic origin of uric acid and the alloxur bases and of the processes which result in the formation of uric acid on the one hand and of the alloxur bases on the other.

From the above rather rambling compilation of the theories concerning uric acid, gout and the morbid conditions which occur coincidently with gouty states, the following summary may be made:

(1) Uric acid probably does not exist in the blood in health.

(2) Uric acid is probably formed in the kidney from two sources: (a) From urea interacting with some antecedent of urea, probably glycocine in the kidney. The large amount of uric acid excreted by birds and reptiles and the presence in the blood of these animals of urea and not uric acid points rationally to this source of uric acid in these animals and it is rational to infer that a part at least of the uric acid excreted by mammals, including man, is formed in the kidney in this way. (b) From the neucleins of the body by oxidation probably in the kidney.

(3) That uric acid is not poisonous. That the presence of uric acid in the blood as the quadriurate or biurate probably means that it has been absorbed from the kidneys.

(4) That defective kidneys are the cause of the accumulation of urates in the blood because of insufficient excretion.

(5) That antecedent kidney disease is commonly formed in so-called lithemic states which have often been attributed to the irritating effects of uric acid upon the kidney capillaries and the cells of the tubules.

(6) That the lesions formerly attributed to uric acid are probably due to the toxic effect of the alloxuric bases.

(7) That the presence of these lesions in the kidneys and in the connective tissue elements of the body lead not only to accumulation of the urates in the blood but also furnish a proper condition of tissue for the deposition of the urates as concretions in joints and fibrous tissues.

(8) That the degree of alkalinity of the blood has no influence upon the presence of the urates in the blood.

(9) That the deposited biurate concretions cannot be redissolved out of the tissues by an attempt to increase the alkalinity of the blood and fluid by the use of alkaline medication.

(10) That the presence of concretions of the urates in the body comprise the sum total of its pathologic effects.

(11) That the so-called uric acid diathesis—the influence of heredity, the bad habits of life, alcoholic indulgence, lead poisoning, etc., consists in a condition or tendency to disintegrate a quantity of neuclein far in excess of the amount usually split up with resulting increase of uric acid and alloxuric base formation.

(12) That the condition of the urine as to the presence of uric acid is in single specimens not indicative of the blood state in relation to the presence of urates.

(13) The chemical reaction of the urine bears no relation to the presence of uric acid in the urine and blood, nor does it indicate the chemical reaction of the blood.

SOME OF THE FALLACIES OF URIC ACID ARE THEREFORE:

(1) That uric acid is toxic.

(2) That it is a causative factor in any disease except gout.

(3) That "uricacidemia" meaning acid blood does not exist.

(4) That the chemical reaction of the blood may be altered by the use of medicinal quantities of the alkalies or by diet.

(5) That uratic deposits may be dissolved out by the administration of alkalies.

(6) That lithia is a uric acid solvent of unusual potency.

(7) That uric acid is an abnormal constituent of the urine.

(8) That an excess of uric acid in the urine at one time or a deficiency at another time indicates an abnormal conditino in reference to uric acid.

(9) That rheumatism is due to uric acid.

CONCLUSION.

As stated in the first part of this paper the knowledge of today of uric acid is not so much in the possession of positive knowledge, but rather in the fact that we have thrown aside a lot of theories and absurdities. I hope this paper may have some influence in a dissemination of the facts that most of the old theories in reference to uric acid are dead and buried and that it is not in good form to resurrect or exploit the old skeletons.

100 State St., Chicago.

LIST OF NEW MEMBERS.

Jenkins, James T., Burnside.
Kreider, S. G., Lena.
Sharp, J. M., Stockton.

SURGICAL INTERVENTION IN INTESTINAL PERFORATION IN TYPHOID FEVER.*

BY GEORGE LOUGHEAD EYSTER, M. D.,
ROCK ISLAND.

When in the course of typhoid fever that most appalling accident, intestinal perforation, occurs, it has been the custom for the attending physicians to throw up their hands in despair and inform the anxious friends that a visitation of divine providence has come before which they must lay down their weapons and sorrowfully await the inevitable end which shall waft the soul of their patient from its mortal habitation.

Probably, most of those within sound of my voice have had the experience to sit by his patient's bed in utmost chagrin at his utter helplessness to stay the frightful rapidity with which this complication hurries its victim to the grave.

Experience has demonstrated the futility of any medical treatment in this lesion. Does modern surgery provide a means which will save lives in this direful accident?

Leyden, in 1884, first proposed to treat peritonitis, resulting from perforation of the bowel, by operative measures. In the same year Mikulicz reported three cases of peritonitis which he treated surgically, one of which was thought to be from perforation of typhoid fever. The first definite operation for intestinal perforation in typhoid fever was performed by Kussmaul and Lucke in 1885; in the same year Bouticou of Troy, N. Y., operated on another patient.

Dr. Jas. C. Wilson of Philadelphia, in 1886, was the first writer in English to suggest that operative measures should be instituted in typhoid perforation.

Since then there have been numerous articles in medical literature upon this procedure, notably those of Dr. W. W.

*Read at the Fifty-first Annual Meeting of the Illinois State Medical Society, Peoria, May 21, 1901.

Keen of Philadelphia in 1898 and 1900, where he has made a collection of 158 operative cases from 1885-1899, of which 97 were operated upon by American surgeons. The frequency of intestinal perforation in typhoid fever is estimated variously. Schulz (Centralblatt fur Allgemeine Pathologische Anatomie, 1891), states perforation took place in 12 per cent of 3,686 cases in Hamburg in 1886-1887.

Liebermeister (Ziemssen's Handbuch Pathol, und Therapeut, 1874), found perforation in 1.3 per cent of 2,000 cases in Basle between 1865 and 1872. Holscher (Munche Med. Wochenblatt, 1891), found perforation in 6 per cent of 2,000 cases.

Murchison (Continued Fevers, Second Edition, 1873), found 11.38 per cent in 1721 cases.

Fitz (Transact. Assoc. Amer. Physicians, 1891), in 4,860 cases found the mortality was 6.58 per cent, which may be accepted as also fairly representing its frequency.

Murchison estimates the mortality in general from typhoid perforation at 90 per cent and in those cases in which general peritonitis ensues at 95 per cent.

According to Fitz in 444 cases of perforation 71 per cent occurred in males and 29 per cent in females.

Statistics indicate that it rarely occurs in children.

DURATION OF LIFE AFTER PERFORATION.

In a table of 134 cases there died on—
First day, 37.3 per cent.
Second day, 29.5 per cent.
First week, 83.4 per cent.
Second week, 9 cases.
Third week, 4 cases.
Thirty days, 1 case.
Thirty-eight days, 1 case.

The time at which perforation most frequently occurs is in the second and third week. The large percentage of cases occurring in persons from twenty to forty years of age. The site of perforation is usually in the ileum, if not there then the caecum, appendix and sigmoid flexure of the colon should be examined. Hawkins (London Lancet, 1893), in 72 cases found 61 in ileum, 3 in caecum, 3 in appendix, and 5 in colon.

Perforation is almost uniformly single, but is occasionally multiple. Fitz reports in 167 cases, single perforation in 138, multiple in 29.

If the perforation results from the ulceration of a solitary follicle it is apt to be small and round. If it results from ulceration of a patch of Peyer, it may be oval or round and will be much larger and may even involve half the circumference of the bowel. Sometimes shreds of tissue will be left partially closing the opening, at others the opening is total and clean cut. Sometimes there is a tolerably wide area around the opening in which the intestinal wall has been greatly thinned.

Of 80 cases in which a record was made by Fitz of the symptoms it was found that in 60 cases the onset was sudden, in 15 cases the symptoms were gradual or latent, while in 5 cases there were no symptoms pointing to perforation.

The symptoms of perforation in typhoid fever are not generally considered to be so marked as to render recognition of the complication easy and certain. There is sudden onset of severe pain in right iliac region, soon becoming general over the abdomen, early and recurrent vomiting, rigidity of the abdominal wall, which may be retracted but is usually distended; costal breathing, and such signs of collapse as a fall of temperature, pale and pinched features and a rapid small pulse. As reaction sets in the temperature rises, the general surface becomes livid and covered with cold clammy perspiration and with the escape of gas into the peritoneal cavity, the area of liver dullness in front and at the side becomes tympanitic. We should not overlook the fact, however, that symptoms identical with the most severe ones resulting from perforation of the intestine, may be due to perforation or rupture of the gall bladder, to sloughing of a

mesenteric gland, or to rupture of a splenic abscess.

Herringhause and Bowly (British Med. Jour., 1897), record a case in which symptoms pointed to perforation, yet at the operation only scybala in the colon was found.

Keene (The Surg. Comp. & Sequels of Typhoid Fever, 1898), gives as other causes for typhoid peritonitis than perforation, rupture of mesenteric glands, abscesses of the abdominal wall, abscess of spleen and perforating ulcer of the gall bladder. Cushing (John Hopkins Hosp. Bulletin, 1898), refers to what he calls a pre-perforation stage and attributes the early complaints of pain to a slight involvement of the serosa and possibly omental adhesions. Pre-perforation stage, including the whole period between the first involvement of the serosa, with the formation of customary adhesions which may for a time constitute the floor of the ulcer after the serosa has given way and themselves become broken down and permit general peritoneal infection.

Monad and Van Verts (Revue De Chirugie, 1897), state that in their study of this condition adhesions, however slight, almost never occur when the perforation is situated in the ileum, and they further state that the peritoneal infection is not always a rapid fulminating process, that it may occur slowly from what they call "propagation," that is a migration of the bacteria through the necrosed and damaged intestinal coats and that this form of infection is no less worthy of consideration than the rapid infection from sudden intestinal rupture and extravasation of intestinal contents.

The pre-extravasation stage properly means a period of time after local peritonitis has taken place, in which there is no extravasation of intestinal contents; either because of the necrosed portion of the intestinal wall remaining in place without dropping out, or because of adhesions. Local infection of the peritoneum causes pain of greater or less severity. This pain may not be complained of in the very sick and stupid typhoids, but in milder cases may be just as prominent a feature as the pain from local peritoneal infection of appendicitis before perforation has taken place. Warren (Transac. Amer. Surgical Assoc., Vol. XVIII, 1900), says that out of 21 cases the early pain and tenderness was present in all but 7 cases; of these five were mild cases in which sudden rupture of the serosa and extravasation took place; two with equally sudden symptoms, operative procedure disclosing advanced general septic peritonitis, had been so sick and stupid that it was impossible to diagnose the beginning of the general infection. Fourteen cases had early warning, earlier by definite number of hours than severe symptoms, and all these cases were found to be far advanced in general peritonitis at time of operation. The early symptoms meant beginning of peritoneal infection. The severe extravasation of intestinal contents and general peritonitis. Complaints of abdominal pain in cases of typhoid fever point to beginning of peritoneal infection through a pre-perforative stage or to a slow peritoneal infection through a perforation with or without temporary adhesions or to a beginning infection from some other source than the intestine.

No abdominal symptoms either subjective or objective, occurring in the course of typhoid fever should be regarded as trivial and sudden change of any sort in the patient's condition should lead first of all to a suspicion of this most serious complication. One very important symptom which indicates perforation and which has only recently been observed, is the presence of leucocytosis. Though the presence of leucocytosis is not an infallible sign of perforation, as it may disappear with the onset of general peritonitis, it is most valuable in the anticipatory stage. According to Thayer (John Hopkins Hosp. Bulletin, IV), there is no increase in the proportion of white blood corpuscles during the fever but rather a slight diminution of their number. During the fever the number may fall below 2,000 and sometimes below 1,000 per cubic millime-

ter. The lowest count seeming to be about the end of the third week. Numerous reported observations indicate that the occurrence of leucocytosis during the course of the fever may quite properly be considered as coincident with the presence of some septic complication other than the surface ulceration of the intestinal tract. Of course the existence of a septic focus, or an abscess or a septic phlebitis elsewhere than the abdomen might also furnish cause for leucocytosis. Cushing (John Hopkins Bulletin), draws the following conclusions from data observed:

1. The appearance of leucocytosis in the course of typhoid fever points toward some inflammatory complication in its early stages.

2. If this complication be a peritonitis and remain localized, associated possibly with a pre-perforative stage of ulceration, or with a circumscribed slowly forming peritonitis after perforation it may be and usually is signalized by an increase of the leucocytes in the peripheral circulation.

3. If, however, a general septic peritonitis follow, the leucocytosis may be but transitory and overlooked, as it disappears concommittantly with the great outpouring of leucocytes into the general peritoneal cavity. The distinctive diagnostic features of perforation then are sudden and decided abdominal pain, associated with an abrupt fall of temperature.

Hemorrhage is accompanied with a sudden fall of temperature, but not by sudden increase of abdominal symptoms. Leucocytosis is a confirmatory sign. Resonance over hepatic region is a distinctive feature, though this sign is frequently absent.

In cases of typhoid fever of great severity with marked delirium and distention of the abdomen the symptoms may all be masked, as indeed they may in cases of great debility. It is well to emphasize the fact that even in mild cases of fever, perforation may occur without the fulminant symptoms and are accustomed to associate with this lesion.

The diagnosis having been made and surgical intervention determined upon, what should be the selected time for operative procedure?

Keene's table showing recovery rate of operation according to number of hours after perforation occurs would indicate that the best results are to be obtained when operation is done during the second twelve hours following the accident. This should not be taken though as an iron bound rule, as each case may differ in the rapidity with which it reacts from the shock produced by the accident. It may be taken as a rule that the time to operate is as soon after reaction occurs as consistent with proper preparation.

Osler (London Lancet, Feb. 9, 1901), urges the need for prompt recognition of intestinal perforation; showing that 25 per cent of the deaths from typhid fever are due to this complication and states that in his hands from 30 to 40 per cent of the cases of perforation have been rescued from death by timely surgical intervention. To obtain success certain elements seem to be necessary.

The identity of the accident must be recognized at once before the diffused septic peritonitis effaces all hope of preserving life.

The lesion must be susceptible to surgical treatment; wide spread infiltration of the intestine or worse extensive sloughing would contra-indicate operation. Of course these conditions cannot be accurately determined before operation and the surgeon must, therefore, be prepared to find it impossible to complete his work in a certain number of cases.

The physical condition of the patient must be such as will enable him to withstand the strain of the operation.

In connection with this point it is well to remember that the shock of the operation has not proved so fatal as might have been expected. Osler records a case which during an attack of typhoid fever

was operated upon twice for intestinal perforation, and had the abdomen opened a third time on the supposition that another perforation had occurred without fatality.

A prime element of success in operating is rapid and careful surgical skill, avoiding unnecessary manipulation of the bowels.

There seems to be a unanimity of opinion among operators that the use of local anaesthesia as eucaine or cocaine instead of a general anaesthestic increases the probabilities of success; where a general anaesthetic is used ether is preferable.

In the operative technique the ordinary asepsis of laparotomy should be carefully observed. In my opinion the incision should be in the median line, unless a distinct exudate can be outlined to the right in the region of the appendix. The incision should be free enough to admit of rapid work. The appendix should first be inspected, then the ileum and so on until the perforation is found. The edges of the perforation can usually be inverted and closed by the ordinary Lembert suture or better a Halstead mattress suture. Where the perforation is very large, closure may be aided by the use of omental graft as practiced by Legnue (Revue de Chirurgie, Feb., 1901). Where perforations are multiple or large the condition may require resection of the bowel. But where this procedure has been necessary the cases have usually died. It is perhaps better in such cases to resect the damaged portion of the bowel and leave a temporary artificial anus without attempting immediate enterorraphy. The cleansing of the peritoneal cavity should always be most complete and thorough, by profuse washing out with hot normal salt solution or sterile water. This may be greatly facilitated by gently insinuating a long glass irrigator into various portions of the peritoneal cavity. In some cases it is well to supplement the toilet by wiping with sterile gauze.

Unless the cleansing of the peritoneal cavity is done with the most scrupulous care the operation will probably prove of little avail.

In the larger number of cases drainage, in some form, capillary, tubular or combined, should be employed, though in a certain number of cases it may be well to fill the abdomen with normal salt solution and close without drainage.

Keene, in his book on "The Surgical Complications and Sequels of Typhoid Fever, 1898," gives a table of 83 cases operated upon by various surgeons, in which there occurred 67 deaths and 16 recoveries. This number was increased to 158 cases in an article by him in the Journal of the American Medical Association in 1900, with 121 deaths and 37 recoveries. Since then so far as I can find in careful research of current medical literature, there have been reported the following cases:

Houchard Bull. et Mem. De la Soc. Gueniot Anat., April, 1899—Death.

I. J. Mayer (Penn. Med. Jour., 1900)—Recovery.

Marsden (London Lancet, 1900)—Recovery.

Davis (Presse Medicale, Dec., 1900)—Recovery.

Legnue (Revue de Chriurgie, Dec., 1900)—Recovery.

Warren (Transactions of Amer. Surg. Asso., Vol. XVIII, 1900)—22 cases—19 deaths, 3 recoveries.

Loison (Revue de Chriurgie, XXIII, 177-1901)—Recovery.

Legnue (Revue de Chriurgie, XXIII, 284-1901)—Recovery.

Legnue (Revue de Chriurgie, XXIII, 284-1901)—Recovery.

Rochard (Revue de Chriurgie, XXIII, 284-1901)—2 deaths.

M. Routier (Revue de Chriurgie, XXIII, 285-1901)—Death.

These cases, together with those compiled by Keene, making a total of 191 cases of operation for intestinal perforation in typhoid fever reported from 1884 to Feb., 1901. In which there occurred 144 deaths and 47 recoveries; being a recovery rate of 29.89 or nearly 30 per cent.

Where the only alternative is almost certain death, these results should give to even the timid man courage to perform an operation which gives so fair a chance for the saving of human life.

Discussion.

Dr. A. E. Halstead, of Chicago: Mr. President—The statistics of recoveries following operation for typhoid perforation are unreliable, for the reason that men report their successful cases and not their fatal ones. Those who have a uniform mortality of 100 per cent following operations for typhoid perforations never report their cases. I have had some experience in operating for typhoid perforation. I have operated on three cases of perforation following typhoid fever, and they have all died. To my personal knowledge, at the Cook County Hospital during the last five or six years there have been six or seven cases operated on, and they have all died with possibly one exception, and none of these cases have been reported. Statistics, therefore, in regard to this operation, like those with reference to a great many other operations, are practically worthless. We have to report the whole number of cases operated on, and if this were done we would find that the mortality is very high. The mortality usually given of cases not operated on is 90 per cent. The success of operation in these cases will depend largely on the kind of infectious agent that is thrown out from the bowel into the peritoneal cavity. Where we have streptococcus infection, or mixed infection with streptococci, we shall find that the patients succumb to peritonitis. In those cases where we have a mild infection from the colon bacillus, even then there is little chance for the patients to recover from this infection.

As regards the danger of shock from these operations, I have noticed one patient in the most extreme shock, but the administration of ether had dissipated the shock to a certain extent, and the patient was better during the operation than before. I consider the presence of shock following perforation of the intestine from typhoid fever no contraindication to operation. If we are going to operate at all, we should do so at once. The reactive stage that follows perforation of the intestine simply shows that the patient has some resistance left. It is in that particular class of cases, where there is some reaction, that we get recoveries following perforative peritonitis. But the cases in which there is no reaction prove fatal.

Dr. William E. Schroeder, of Chicago: I am glad that my friend, Dr. Halstead, has expressed his views as to the results and statistics of operations for perforation in typhoid fever. I have been unfortunate to have two cases within the last two years. Both died. The first case was that of a man in whom the perforation was of thirty-six hours' duration. He was transported some distance; an operation was done through the right side of the rectus muscle, the Langenbeck incision made as for appendectomy; the wound was sutured; normal salt solution was administered, and drainage provided for, patient died forty-eight hours later of general peritonitis.

The second case was an unusually favorable one. It occurred in the hospital; the perforation occurred low down. The man had developed a general peritonitis. At the time of the occurrence of the perforation he had some pain, but not much, and it was decided it was not a perforation of the intestine because the severe symptoms had subsided. For a short time he was watched, and then operated on. In opening the abdomen a small hole was found not larger than a pea. This was sutured, and drainage established as in the previous case, but the patient deid forty-eight hours later of general septicemia.

As to the anesthetic, I fully agree with Dr. Halstead; even though the patients come in and seem almost semi-moribund, the use of ether is distinctly a stimulant rather than a depressant.

As to the use of local anesthetics, where I have used them for abdominal work, for strangulated hernias, etc., or spinal anesthesia, it is uncomfortable. In spinal anesthesia we have uncontrollable vomiting which would be distinctly detrimental to the operation for perforation of the intestine.

I am an advocate of early operation. We are indebted to Kittredge Williams and others for the work that has been done on the intestinal tract. They have demonstrated that in the normal intestinal tract, particularly in the ileum, there are no germs to speak of. That is why cases of gunshot wounds on the left side or of the duodenum are much more apt to recover than those that occur lower down; because of this condition of pathogenic germs in the ileum, I would advocate early operation as the only hope. To relegate these cases to medical men would be wrong. While the statistics are not very reliable of these cases, and the mortality is greater than that which is recorded, yet I think the prognosis is not altogether unfavorable in the early operated cases.

DOCTORS' CONTRIBUTIONS TO SCIENCE IN THE PAST 100 YEARS.*

BY JAMES L. REAT, M. D., TUSCOLA, ILL.

The time limit of this paper makes it impossible to dwell upon details or even to hint at minor discoveries. A summary rather than an analytical view must be taken.

At the dawn of the Nineteenth century John Dalton was presenting to scientists his theory of the chemical atom. He saw

* A Paper Read at the Annual Meeting of the Æsculapian Society of the Wabash Valley, May 16, 1901.

that the hypothesis, if true, furnished a key to secrets of matter hitherto unsolvable, but his contemporaries were little impressed with the novel atomic theory, until Berzelius, a medical practitioner of Sweden, proposed to improve upon the method by substituting for the geometric symbol the initial for the Latin name of the element represented. ("O" for oxygen, "H" for hydrogen and so on.) This simple system soon gained general acceptance. Now every schoolboy is aware that "H2O" is the chemical way of expressing the union of two atoms of hydrogen with one of oxygen, to form a molecule of water. But such a formula would have had no meaning for the wisest chemist before the days of Berzelius, the country doctor.

There were giants abroad in the early days of the past century, and among them there was no taller intellectual figure than that of a young Quaker who settled in London to practice the profession of medicine. The name of the young aspirant to medical honors and emoluments was Thomas Young, who possessed a splendid mental equipment, and according to Dr. Williams' estimate of his merits, he deserved a niche in the temple of fame not far removed from that of Isaac Newton.

This young doctor's theory of light and color marked an epoch in physical science, for here was brought forward, for the first time, convincing proof of that undulatory theory of light with which every student of modern physics is familiar—the theory which holds that light is not a corporeal entity, but a mere pulsation in the air, in liquids or solids.

In the science of physics no man has done more than Dr. Julius Mayer, a practitioner of medicine in the little German town of Heilbronn, who, in 1842, published his views on the forces of inorganic nature, in which the entire doctrine of the conservation of energy change in molecular arrangement, was explicitly stated, while two years earlier, while cruising in the tropics, he had observed that the venous blood of a patient seemed redder than the venous blood of a patient usually is observed to be in temperate climates. This taught him that the cause must be that the lesser amount of oxidation required to keep up the bodily temperature in the tropics and that the body was a machine dependent upon outside forces for its capacity to act. Here, then, was the obscure physician, leading the hum-drum life of a village practitioner, yet, as his biographer says, he was seeing visions such as no human being in the world has ever seen before.

In the broad field of botanical sciences, Dr. Asa Gray ranked among the leading botanists, not only of America, but of the world. After practicing medicine for a time he relinquished it for his favorite study, coming forward at a time when the old artificial systems of botany were giving way to the natural system which has taken their place, and was the first in America, in conjunction with another physician Dr. Forry, to arrange the heterogeneous assemblage of the specimens upon the natural basis of affinity. When we call to mind the fact that science is the offspring of order, and where the latter is wanting the former cannot exist, a proper appreciation can be placed upon the great work of these two men.

Dr. Gray accepted the theory of natural selection, declaring that it could be reconciled with the strictest creed, yet, in opposition to Darwin, maintained that variation was guided by an intelligent power.

In all the realm of biology, none stands higher than Bichat, the French physician, who held an appointment in one of the hospitals of Paris, where he carried on his investigations in anatomical and physiological research until he became one of the most noted scientists of his day. He was the first man to simplify anatomy and physiology by reducing the complex structures of the organs of the body to the simple or elementary tissues that enter into them in common. He developed another luminous idea—that man, including the higher order of vertebrates, has two different sets of organs—one set under volitional control and serving the end of locomotion, the other removed from volitional control and

serving the ends of "vital processes" of digestion, assimilation and the like. He called these sets of organs the animal system and the organic system, respectivelv.

Claude Bernard, another Frenchman, to whom we owe much, who became a noted physiologist, studied medicine in Paris, graduating in 1843. His first contribution to science of an original character was that on the function of the pancreas, in which he demonstrated that this viscus is the true agent of the digestion of fatty bodies; then came his researches on the glycogenic function of the liver, establishing the doctrine that blood which enters the liver does not contain sugar, while blood that leaves that organ and goes to the heart via the inferior vena cava is charged with it. He also showed the influence of the nervous system on this function and produced artificial diabetes by division of the pneumogastric nerve.

Magendie, who was called the unscrupulous vivisector, was a practitioner of medicine during the earlier years of his professional life, was engaged in hospital practice in Paris, was the first man to prove experimentally that the veins are organs of absorption. He performed an important series of experiments on the cause of death when air is admitted into the larger veins. He also determined the function of various nerves and of different parts of the brain, and with Sir Charles Bell, another physician who practiced medicine for a time in Edinburg, and then in London, shared the honor of having discovered the separate functions of the two roots of the spinal nerves. Both men were eminent in science.

Marshall Hall, who died in 1857, was the most famous physician in his day, and in his special field of science was a master. His name is best known in connection with his observations in regard to the reflex function of the nervous system. He taught that all physiology exists in the caterpillar or the butterfly, if we could only detect it. He said the least of God's works are infinite.

Dr. Joseph Leidy, of Philadelphia, graduated in medicine in 1844 and served with distinction as a medical officer during the War of the Rebellion. He has been called the American anatomist, and was the first to find cysts of trichina in pork. Later it was demonstrated that the parasite gets into the human system through ingestion of infected meat, and that it causes a definite set of symptoms of disease which, prior to these discoveries had been mistaken for rheumatism, typhoid fever and other maladies; but the greatest value of the discovery of trichina was in the direction of scientific medical knowledge, directing attention to the subject of microscopic parasites in general, making it clear that not merely animal, but also vegetable organisms of obscure microscopic species have causal relations to the diseases with which mankind is afflicted.

The discovery of the pain-dispelling power of the vapor of sulphuric ether when inhaled was of greater immediate importance to humanity than any other discovery that had come in the century, perhaps in any field of science, and it was solely American—but that which had been thought impossible, the miraculous even, had happened. By one of those coincidences so common in the history of discovery, a medical practitioner of Alabama, by the name of Dr. Crawford W. Long, was experimenting with anaesthetics at the same time that Dr. W. G. Morton of Boston was investigating the subject. In addition to its direct beneficences, anaesthetics have gone far to aid in the progress of science by facilitating experimental studies of animals.

In the realm of psychology, that branch of metaphysics which may be briefly defined as the science of mental phenomena, the leader on this side of the water was Dr. Benjamin Rush, the Sydenham of America, who led the reform movement here in the interest of the insane. Daniel H. Tuke, a medical practitioner of England, raised a revolt against the traditional custom which, spurning the insane as demon-haunted outcasts, had condemned persons of unsound mind to dungeons, chains and the lash.

Esquirol, one of the greatest physicians of Paris, and a contemporary of Drs. Rush and Tuke, secured the appointment of a commission in 1818 for the remedy of the abuses in mad-houses, and by their united efforts humane and scientific treatment of the unfortunates was inaugurated.

I should like to speak of Drs. Draper of New York, Virchow of Germany and others, yet a mere catalogue of names of physicians and their valuable contributions to science during the Nineteenth century cannot be attempted at present.

But as all advances in any of the sciences have a bearing near or remote on the welfare of our race, I wish to refer to a man who died in 1823, who at one time was a pupil of the celebrated Dr. John Hunter, and afterward settled at Berkely, a town of less than a thousand inhabitants, to practice his profession. This country doctor's discovery, though in embryo, a contribution from the Eighteenth, but in its power of direct and immediate benefit to humanity during the Nineteenth century surpassed any other discovery of this or any other epoch, making another grand triumph of experimental science.

He was voted a grant, honors were conferred upon him by foreign courts, and he was elected an honorary member of nearly all the learned societies of Europe. Of all the great names that were before the world during the past century there was, perhaps, no other one at once so widely known and so universally reverenced as that of the English physician, Edward Jenner, the discoverer of vaccination.

ANGIONEUROSES.*

BY FRANK P. NORBURY, M. D., JACKSONVILLE.

Angioneuroses are best studied in groups; their clinical importance and recognition are thus emphasized. Such a grouping cannot be made except by prolonged observation of the phenomena of this peculiar class of disorders, and because there are many unsolved problems associated with these neuroses of which etiology is chief. Spiller of Philadelphia, has raised the question as to whether or not they arise from gastro-intestinal intoxication? (Progressive Medicine Sept. 1900.) And questions very much whether the sympathetic nerve is chiefly at fault. These questions naturally suggest the primary question viz: "What is meant by angioneuroses?" For an answer we give Dana's definition which is concise and to the point viz: "The term given to disorders of the vaso-motor centers and nerves." This definition in itself implies that angioneuroses are affections of the great sympathetic because the vaso-motor centers and nerves are parts of the *great sympathetic* and as such are subject to the characteristics and whims of this most wonderful automatic mechanism, viz:—always active, always alert and always on duty. It is not to be understood that the whole of the sympathetic is involved at once, because indeed this is not so, but we may have as part of the phenomena occasional disturbance of all the links, viz:—the cephalic, cervical, mammary, abdominal and pelvic. It is rare, however, to notice that all are disturbed at one time, except in the affections of the menopause. We should take into account the fact that vaso-motor nerves control the caliber of vessels, and branches are sent to all parts of unstriated musculature, viz:—muscles of the blood-vessels, stomach, intestines, bronchi, lungs, urethra, bladder, uterus and muscles (unstriated) of the lid and to the sweat and salivary glands. The disturbance of this vast nervous function produces a neurosis. The disturbance then is primarily a nervous affection of the vaso-motor center and nerves—a true angioneurosis, and when we remember that the chief office of the sympathetic is to perserve the tone of vessels, then this disturbance of tone *is the* angioneurosis.

ETIOLOGY—The neuropathic diathesis founds the basis upon which these neuroses are established. Occasionally we may find no such history, but in its stead the arthritic diathesis, which neurologists have learned to consider as of almost equal importance

*Read at the Fifty-first Annual Meeting of the Illinois State Medical Society, Peoria, May 21, 1901.

in certain nervous affections. These neuroses occur in organic diseases of the brain and spinal cord. I have seen them among the insane in cases of melancholia, paretic dementia, also in cases of cerebral syphilis; in multiple sclerosis of the brain and cord; in locomotor ataxia; in cerebral palsies of childhood; in congenital imbeciles. Most of the cases seen in private practice are among the neuropathic and are unaccompanied by organic disease. Heredity is a factor—as it is in all neuroses. The source of predisposition may be by direct transmission as reported by Osler. My experience has been that most all cases, show an ancestry of related disorders and not infrequently the hereditary taint has been shown in other nervous affections before the angioneurosis has been pronounced. The inheritance of what Preston calls that indescribable something with its unstable nervous system (the neuropathic diathesis) gives from childhood to old age many opportunities for such affections. Tuberculous patients who too may be neuropaths or as Mays would say *are* neuropaths, are frequently victims to these complaints. I have failed to note that occupation or environment influenced angioneuroses *at all.*

Of the angioneuroses, the affection which is most common to attract attention is angioneurotic oedema. This is an affection for which says Spiller we have failed to account in the study of etiology. Quincke first described this disorder and assigned its cause to be a vaso-motor neurosis. Others following this lead, notably Osler, Dana, Collins have confirmed this belief. It certainly is within the vaso-motor field as close study of a case will reveal; it is certainly more than an intoxication. My clinical experience has enabled me to have several cases under prolonged observation all of which confirmed (in my humble judgment) the fact that it is a vaso-motor neurosis. Angioneurotic oedema is characterized by the appearance of circumscribed swelling of various portions of the surface of the body and mucous membrane, without apparent cause or premonition and is non-inflammatory in action. (Collins.) It is not so easily recognized as this definition would imply because we are apt to confuse it with three (at least) skin affections, which as Hyde says sometimes makes it hard to distinguish. These skin affections are erythema multiforme, erythema nodosum and giant urticaria, while syphilis and rheumatic nodes sometimes enter into the confusion. Hyde says the concomitant symptoms are necessary in order to distinguish this disease. Then from the absence in circumscribed oedema, of itching or prickling sensations, febrile complications and rheumatoid pains, the differention is made.

The clinical history of this affection is briefly stated in the following case. G. J. D. Mt. Vernon, Ill., referred to me Feb. 4, 1901. Male, aged 47. Eighteen months previous noticed circumscribed swelling on one wrist, dark red in color looked like a bee sting, no pain, no itching, the oedema was tense, it lasted 24 hours. Two weeks later this same swelling appeared on the other wrist with a history of similar duration, etc. Attacks have occurred since, on an average of three to four on the body, never twice in succession in the same locality but perhaps more frequently on the face; then a part of the upper lip, and on two or three occasions one side of the tongue, making it almost impossible for him to talk, once in the larynx, which was alarming in its manifestations. The genitalia have been involved, also the legs, abdomen, and he says an occasional diarrhoea and also disturbance of the stomach without apparent cause, which would lead us to believe that these mucous membranes were involved. Collins says the occurrence of the swelling in part predisposes that place for future attacks and it is the exception for it to be once seen in a place which thereafter remains free. In other cases, I have noticed one attack involving the right arm last six days and later return.

I have a lady patient presenting peculiar characteristics where the location is always the same and always appears after a fright or shock. The location is around the left

eye, it first appeared during the menopause, when while watching a street parade of Ringling Bros. show, she was frightened in watching a man enclosed in the cage with the lions, the oedema appeared and lasted several hours. She came to my office at this time. I saw her another time when she had suffered bodily injury severing a small artery, the cut was of no consequence, but the shock caused reappearance of the oedema. Again, I saw her when illness in her family, serious and becoming more alarming, the anxiety caused her to have another attack, which lasted several hours. It is not unusual in the insanities of the menopause to notice angioneurotic oedema. I have noticed it in several cases. But most common at this period is that peculiar oedema of the joints especially of the knee joint. Hydrarthrosis intermittens; this may or may not persist for sometime. It is usually limited to one or both knees, or both ankles. It is independent of visceral disturbances and is non-inflammatory in character. I once saw such a case being treated for synovitis. Schlesinger proposes to name all oedema of nervous origin hydrops hypostrophos and in this he would include then the oedema of the joints, the intermittent oedema of the eye lids noted in the neuropaths and very varied localized swelling all of the same type. These varied types are noticed in cases of neurasthenia, where sooner or later in the study of such cases we will meet all of this group of angioneuroses.

The angiopathic conditions of neurasthenia include more than oedema. The varied algid and florid states, the "so-called hot and cold waves," the profuse sweats, the localized blushing, and all of this group of vaso-motor changes. In prolonged cases we may find trophic involvement but this combination is comparatively rare

In hysteria we have the foregoing phenomena of neurasthenia and in addition involvement of the vaso-motor nerves of the viscera, stomach, intestine, bladder, uterus, urethra, all may have a turn in the varied manifestations of localized vaso-motor involvement.

In exophthalmic goitre which I believe to be a disease of the cervical sympathetic, we have more angioneurotic phenomena. The palpitation, perhaps the goitre and the exophthalmus are but manifestations of angioneuroses, more or less fixed or permanent? If we but study these cases, some of whom get well, we find the varied evidences of angioneuroses.

Last but not least are the angioneuroses of the menopause, which are but the intensification of all experienced or noticed at other periods. The menopause seems to be the rallying ground for angioneurotic phenomena. The algid and florid states, the profuse sweats, the angioneurotic oedema, the intestinal disturbances, the involvement of the kidney and bladder, and varied other angiopathic conditions are in evidence during this period and serve to impress us with their importance.

The diagnosis of an angioneuroses is not difficult if we but carefully study the history of the case and the phenomena presented. This last is not always possible because of its variability but usually, sooner or later we can see in part, at least, distinctive features of the case. It requires patience to notice the details and it is our duty to give every voluble neuropath close attention to the recital of her case because we can, from much of this chaff, sift out the real meat of the case. The points in diagnosis are oedema recurrent, without inflammatory action, usually appearing at irregular intervals and in the same locality, *disturbance* of thermal conditions, algid alternating with florid states, appearing at irregular intervals and especially under excitement, *disturbance* of sweat glands, profuse sweats without apparent cause, disturbance of secretory functions of kidney, disturbance of bowels, etc., etc.

Mental symptoms occasion a subjective feeling of impending danger. fear of death, fear of heart disease, of various other dreadful disorders and a psychic discordant condition in general.

TREATMENT: The treatment of angioneuroses is not definite. It is symptomatic and involves general hygiene, careful regulation of the diet, proper care of the person. Diet is especially important but I know of no one diet to be used to the exclusion of others. I go on the plan that what is one man's meat is another ones poison and try to make a personal investigation of this feature, then establish diet based on such an inquiry. Rest is imperative in some cases. Overwork and worry must be held in check and sometimes enforced rest is necessary. The medicinal treatment includes regulation of the bowels and salines are of especial service here. The building up of an impoverished blood is necessary, and arsenic, iron and strychnia are needed. The bromides are needed to control the mental state occasionally. A change of scenes will add to the pleasure of treatment.

POTABLE WATER.

BY ARTHUR W. PALMER, M. D., CHAMPAIGN.
Professor of Chemistry, University of Illinois.

The sources of water supply available to the people of Illinois include atmospheric waters or the rain, surface waters, i. e., the water of streams and lakes, and ground water, that is, water which issues from the earth in springs or which is obtained by means of wells.

The rain may for our purpose be considered the original source of terrestial waters; produced as it is by the condensation of water vapor in the upper reaches of the atmosphere it is the purest water which nature affords, but in passing from natures own still to the surface of the earth and beneath the surface it comes in contact with numerous things from which it dissolves the various ingredients which characterize all other natural waters.

No natural water can be regarded as pure water in the sense that it be expected to contain absolutely nothing but water. Ordinary distilled water is not pure in this sense for it acquires various foreign substances from the vessels in which it is prepared or stored and from the air with which it is in contact. By the sanitarian that water is regarded as pure which contains no foreign bodies or disease germs or objectionable salts. In popular usage the term "pure water" may be understood to mean an entirely wholesome water and not necessarily a water which the chemist would designate as pure.

When, by the cooling of moisture laden strata of air, the moisture is condensed and seperates in droplets, the rain water thus produced is undoubtedly a tolerably pure distilled water, but while falling down through the atmosphere to the earth's surface it washes and cleanses the air and thus burdens itself with many foreign substances some of which are gaseous, some solid, some of them held in solution others merely in suspension.

The substances thus brought into the rain water include the various gaseous constituents of the air itself and all sorts of solid matters which are held in suspension, the most objectionable of which are derived from the dust of the roadway because that dust in addition to fine particles of rock and soil contains also the pulverized excrement of animals.

In addition to these various impurities acquired from the air, rain water as it is commonly collected contains also the scourings of roofs which have gathered dust, soot, decaying leaves, the excrement of birds, etc. When the rain reaches the earth part of the water flows over the surface constituting the "run off" and goes directly to the streams, while part percolates down through the soil and becomes the so-called ground water.

The run off carries into the brooks and ponds and lakes the washings from all the various refuse matters, mineral, vegetable and animal with which the ground in populous districts is more or less cumbered.

In an uninhabited and barren country nothing especially objectionable would

*Read at the Fifty-first Annual Meeting of the Illinois State Medical Society, Peoria, May 21, 1901.

necessarily be in this way brought into the water, but wherever man lives there occur wastes, the so-called wastes of habitation, which accumulate in and upon the ground even where there are efficient sewerage systems. The streams, moreover, constitute the natural drainage courses and receive the discharges from sewers. Even in sparsely populated districts the streams receive drainage from farm-houses and barn-yards and droppings from cattle.

Under ordinary circumstances natural purification processes including aeration, the action of bacteria and the growth of larger aquatic organisms soon render the water of streams inoffensive to the senses, but nevertheless the use of such water for drink in the raw state must always be a menace to health, and should not be tolerated. There is probably not one stream or brook in Illinois, the water of which in its natural state can be drank with impunity and there is no excuse for tempting fate by so doing, for it is perfectly practicable to remove all dangerous impurities by filtration, or to kill them by thorough boiling.

That portion of the rain water which sinks into the ground is relieved of the grosser suspended matters during its percolation through the various soil strata, but this natural soil filtration cannot always be depended upon to remove the minute germs which cause or convey disease. It is a known fact that waters which by soil filtration have been made clear, sparkling, cold and palatable have nevertheless contained disease producing organisms and have by their use for drink caused much sickness and many deaths.

All natural waters, except freshly fallen rain which has been collected only after the atmosphere has been thoroughly washed by the immediately preceding precipitation, contain mineral matters in solution. In the Mississippi Valley the ground waters usually contain more mineral matters than is in general desirable, but these substances do not cause acute diseases and when they are present in normal quantities they are not especially objectionable. On the other hand, often their presence may be regarded as advantageous. The element of danger in the domestic use of water is the presence of disease germs. These germs are abundant in animal excreta, and hence are abundant in sewage.

The purpose for which analyses of water are made is of course in general to determine whether the water is wholesome. It is not practicable ordinarily to determine whether disease germs are actually present or not, because of the amount of time and labor required for the tests themselves, and because of the elusive nature of the disease germ. Moreover, dangerous germs may be absent from the water source at a certain hour and present the next.

It is, however, a comparatively easy matter to determine whether sewage or drainage from refuse animal matters is contained in the water, and inasmuch as disease germs get into the water supply almost exclusively through contamination with sewage, the recognition of the fact that sewage is present is sufficient to throw grave suspicion upon the wholesomeness of the water.

The sanitary chemical analysis of water is directed chiefly to the determination of the question as to whether the water is or is not contaminated with sewage. By the term sewage I mean here not merely such refuse matters as have been discharged into or from an actual sewer, but drainage from refuse animal matters, such as is derived from barn-yards, pig pens, privy vaults, cess pools, kitchen slops, from refuse heaps in back yards and alleys, the washings of streets, etc. When one remembers that there are more than half a million ordinary wells in Illinois and that about half the citizens of the state depend upon these wells for their domestic water supply, this chief surprise is aroused by the apparent carelessness and apathy of the people which permit them to tolerate the conditions which favor the spread of typhoid fever and other water borne diseases.

The tests which the chemist makes in order to discover the presence or assure

himself of the absence of sewage in a drinking water involve the determination of the quantities of several substances, none of which is itself particularly harmful, at least in such proportions as are found in natural waters, or in sewage itself, but the presence of which in abnormal quantities show unmistakably the presence of sewage.

Common salt or sodium chloride is an essential constituent of all animals. As is, of course, well known, it is contained in the blood and in other animal secretions. It is abundant in animal wastes and refuse and is a constant and considerable constituent of sewage. It is not contained in notable quantity in plants, except marine plants.

The quantity of salt contained in sewage or in water can vary only by evaporation of the water, which of course increases the proportion, or by dilution with a purer water which diminishes the proportion. That is, there is no natural process save that of evaporation or that of dilution with a purer water that can affect the proportion of the salt contained in a natural water. All natural fresh waters contain sodium chloride, even rain water contains a minute amount of it, but the proportion contained in potable waters is ordinarily very small as compared with the proportion contained in sewage. To be sure there are in some parts of the earth large deposits of salt, and waters drawn from contact with these deposits may be charged even to saturation with salt, but the ordinary shallow well waters of Illinois of course do not come in contact with such deposits, although in many cases the deeper wells and artesian wells do reach such depths and yield salt water.

When the proportion of sodium chloride contained in a water is above the normal for the place from which the water came, the reasonable inference is that drainage from refuse animal matters or, in other words, sewage constitutes part of the liquid.

The organic constituents of sewage vary in nature and quantity according to the source of the sewage, its dilution, its age, and as the result of various seasonal conditions, the temperature, etc. No means are known whereby we can determine either the nature or the quantities of all the various organic substances which are or may be contained in waters or sewage.

These organic substances include living organisms themselves, both vegetable and animal, the various products of their life activities, their dead remains, and the different substances which result from their more or less complete decomposition or putrefaction. The various essential tissues, membranes and secretions of living organisms are characterized by a considerable content of nitrogen.

We possess means for the rapid and accurate determination of the quantity of nitrogen in whatever it is contained, and it is through the application of these processes and the determination of chlorine that the expert is able to obtain evidence of the presence of sewage and the condition of the organic matters derived therefrom.

All nitrogenous organic matters undergo change through the action of bacteria, but those of animal origin, and it is these that are especially objectionable, are particularly susceptible to their activities. Albuminous substances and other nitrogenous organic matters, as fragments of animal membranes, feces, etc., contained in surface waters, in the soil and in sewage, are decomposed and oxidized by bacteria, the different stages in oxidation being, first the formation of ammonia, next the formation of nitrous acid, finally the transformation into nitric acid, the acid being of course converted into salts by reaction with basic substances which are ordinarily present in the waters or the soil.

The quantities of nitrogen existing in each of these four sorts of combinations having been accurately determined, the next tep is to consider their significance.

The nitrogen contained in the various original substances as animal tissues, urea, glutin, blood, fecal matters, animal and vegetable organisms including bacteria

themselves, living or dead, is all, by the processes employed by the analyst, converted into ammonia, and to distinguish it from the nitrogen existing in other forms is reported under the name albuminoid ammonia. The presence of much nitrogen in this form usually suggests pollution with sewage or drainage from refuse animal matters.

Even in very fresh sewage there is usually a considerable amount of ammonia salts and these increase as the sewage ages and undergoes putrefactive changes. A considerable quantity of nitrogen as free or saline ammonia is usually indicative of the presence of considerable sewage and of the fact that the organic matters are undergoing change.

When a water is found to contain much nitrites it is generally considered unwholesome, for this condition of the nitrogenous constituents is but transitory, is brought about by the action of bacteria and hence is evidence of the presence of bacteria. When the conditions are such that the various nitrifying organisms thrive, they are such as favor the development of disease germs even if no such organisms were contained in the original sewage.

If the water contains a considerable quantity of nitrogen as nitrates, this indicates that at some previous time it contained as correspondingly considerable quantity of nitrogenous organic matters. The transformations of the organic matters may extend to the almost complete conversion into nitrates, and the nitrates themselves may be almost completely used by vegetable growths and thus removed from the water.

These various nitrogen compounds are formed from vegetable matters as well as from animal matters, but we are able to distinguish between these sources by consideration of the quantity of chlorine. If both chlorine and the nitrogens are above the normal the inference is that sewage or drainage from refuse animal matters is present, but if with the nitrogens high the chlorine is low or normal, the inference would be that the organic matters were derived from vegetable sources and their presence in the water consequently less objectionable.

Pronouncement as to the wholesomeness of the water must usually be left to the expert. In some cases of course the presence of sewage in a water may be evident to the senses or one may see sewage running into a stream.

In such cases the services of the expert would be needed only to determine the amount of pollution and the condition of oxidation. In all cases the analyst must be furnished complete information concerning the source of the water, whether from cistern, stream, pond, spring or well, and descriptions of the surroundings, nature of the soil strata, slope, nearness of any possible source of impurities.

It must be born in mind that the value of an opinion as to the wholesomeness of a water depends upon its judical character. It is of value only as it is the expression of an act of judgment which is based upon the fullest obtainable information and pronounced by one who is familiar not merely with the processes of analysis but with the characteristics of the water of the particular locality.

It must be understood that no water which receives drainage from refuse animal matters can be regarded safe or wholesome for domestic use though it can be rendered perfectly innocuous and safe by proper filtration or by thorough boiling. Natural soil filtration cannot be depended upon to completely remove disease germs from the liquids which sink into the earth in villages and towns or in proximity to barnyards, etc., for the capacity of the soil to remove these minute organisms is not unlimited, and, moreover, the soil strata in Illinois and the construction of the ordinary well are such as to facilitate the movement of ground water without entirely freeing it of what is usually the only source of danger, the disease germ itself.

ILLINOIS STATE MEDICAL SOCIETY.

Minutes of Proceedings of the Fifty-First Annual Meeting, Held at Peoria, May 21, 22 and 23, 1901.

THE PRESIDENT: We will listen to the report of the Committee on Medical Legislation.

The report was read by Dr. Black, as follows:

REPORT OF COMMITTEE ON MEDICAL LEGISLATION.

Mr. President and Members of the Illinois State Medical Society:

Your committee appointed a year ago to look after the interest of the profession, in connection with legislation, would respectfully submit the following report:

It was a matter of serious consideration to know just what bills should be introduced or what measures supported. In beginning our work we found much difference of opinion among members of the profession as to the measures most needed. We also found that an attempt to carry out the wishes of everyone would defeat our efforts for all, therefore the duty directly devolved on the committee of determining what measures should be supported and what should be allowed to take their chances with the great bulk of other legislation.

THE LEGISLATURE.

First, we will report to you briefly our actual business with the Legislature. One of the earliest bills presented was Senate Bill No. 48, introduced by Mr. Stubblefield, of Bloomington, on the urgent request of some of his leading constituents. This was an amendment to the medical practice act. It provided that this act should not apply to any person who administers to or treats the sick or suffering by massage.

This was known as the Massage Bill, and grew out of a suit by the State Board of Health against a magnetic healer in Bloomington, who was fined by the court for practicing medicine without a license. He, and his ilk, sought to have those who practice massage as a method of treating the sick exempted from the provision of the medical practice act.

While this only added one word to the medical practice act, it was of far reaching importance, and would have thrown down the bars to every form of quackery that wished to lay hands on. It is sufficient to report that as soon as your committee notified the profession of this bill, they in turn easily secured the co-operation of the members of Senate Committee, to which it was referred, and it was effectually killed. This vicious measure was nipped in the bud, and never really reached the legislative body.

After giving considerable study to existing conditions, and consulting as many physicians as practicable, it became evident that two measures especially were urgently needed. The prevalence of smallpox throughout the State had demonstrated conclusively that our existing local boards of health outside of incorporated cities were very inefficient. In many places no health boards existed. It seemed urgent to the committee that a bill should be introduced "to create and establish boards of health in counties not under township organization, and in townships in counties under township organization outside of the corporate limits of cities and villages; to prescribe their duties and powers and provide for enforcing the same." This bill, besides providing for a board of health in the country districts throughout the State, also puts these boards of health in close touch with the State Board of Health, and in this way forms a complete health organization.

In this connection we quote one paragraph from the bill, as follows: "Provided further, that in case the board of health of any county not under township organization, or of any township in counties under township organization shall fail, refuse or neglect to promptly take the necessary measures to preserve the public health, or in case any such board of health shall refuse or neglect to carry out the rules and regulations of the State Board of Health,

that thereupon the State Board of Health may discharge such duties and collect from the county or township, as the case may be, the reasonable costs, charges and expenses incurred thereby."

In the future the State Board of Health, with the co-operation of local boards of health in every part of the State, will be able to meet epidemics of smallpox or any other disease on a uniform and comprehensive plan, which will save expense and distress to our citizens and more speedily stamp out an epidemic

From a wide correspondence with physicians it was evident that a proper vital statistic law was considered more necessary than almost any other measure. This belief, of course, is founded on the knowledge that all sanitary and health measures must be based on properly accumulated vital statistics. Therefore, a second bill was framed by your committee "for an act requiring reports of births and deaths and the recording of same; regulating the interment or other disposal of dead bodies, and prescribing a penalty for non-compliance with the provisions hereof." This bill makes it the duty of physicians and midwives to report births within 30 days, and allows a small compensation for such reports. It requires that no person shall inter or otherwise dispose of a human body without first securing a properly issued permit

"No such permit shall be issued until there shall have been delivered to the proper official * * * a certificate of death made in the manner directed * * * by the State Board of Health, by a legally qualified physician, or midwife, or by the coroner of the county in which said death occurred. It shall be the duty of the physician or midwife * * * to sign the certificate hereinbefore required." For the convenience of every citizen of the State the bill provides that burial permits may be issued by an officer near by, so that no citizen will be seriously inconvenienced.

Besides these two bills, the committee supported in every way in their power a number of other bills introduced by various parties. One of these was that part of the general appropriation bill which provided for the State Board of Health.

It is gratifying to report that your efforts, as a profession, in supporting the State Board of Health have been crowned with success, and that in the future the Board of Health will have $5,000.00 more annually for sanitary and health purposes than heretofore.

Other meritorious bills were, one providing for the location of an epileptic colony, which on account of sectional differences failed to pass. Another was a bill providing for the establishment of a sanatorium for the treatment of the tuberculous. This bill attracted considerable attention, but failed to pass on account of the large appropriation which it called for, and particularly on account of the fact that the profession as well as the people are not fully educated to the necessity and desirability of such treatment for the consumptive. We think two years of education will give this or some similar bill far greater support. Two years hence this matter should be pushed by the Society. A proper bill should be framed and endorsed at our next meeting.

Your committee was especially pleased with House Bill 190, which provided for the separation of tuberculous persons in penal institutions from all others. This we consider a very important measure, but like the Sanatorium Bill, a further period of education must pass before the profession is ready to give it sufficient support.

This session of the Legislature has been remarkable for the small number of opposition bills presented. The Massage Bill was the only serious measure which your committee has had to combat. House Bill No. 512, entitled "For an act to regulate the practice of surgery," was never seriously considered. A number of other good bills were introduced and given more or less support by the committee.

All these have been published in pamphlet form, and you are no doubt familiar with them. Therefore, we will not take

your time in enumerating. Senate Bills Nos. 122 and 264 passed both Houses with only slight opposition, as a result of the prompt co-operation of the Legislative League. What opposition there was to Bill No. 264 was easily overcome by personal work of the members of the profession with their home members of the Legislature. As a result of your efforts we now have good bills, we think, providing for local boards of health and providing vital statistics.

THEORY ON WHICH THE COMMITTEE HAS ACTED.

Your committee has acted in every respect that it was appointed to serve you. We made every effort to find out what the profession considered important in the way of legislation, and what they would actively support. We have sought to act solely in the interest of the profession. Whatever measure of success has attended our efforts is due to the harmonious and active interest which the profession gave the matters under consideration.

In attempting to secure legislative enactments the numerical weakness of our State Society has always stood in the way of brilliant accomplishment. When you consider that a year ago barely one in eighteen members of the regular profession in the State of Illinois was identified with the Illinois State Medical Society, you will realize the difficulty in approaching the members of the Legislature. While the State Society has always contained the most progressive physicians in the State, yet many good men have not become identified with it. This year has seen the beginning of a very different state of affairs, which we feel confident is to continue.

The small numerical strength of the State Society is due to the delegate plan on which it is supposed to have been organized. This has practically fallen into disuse. Still many societies continue to send delegates. These delegates are the only ones from the local society who become members of the State organization, when, in fact, every member of our local societies should be a member of the State Society. The numercial weakness of the State Society is more apparent than real. The officers of the State Society are nominated by one representative from each local society. This gives the whole membership of the local societies a direct part in the affairs of the State Society, and to that extent all local society members are a part of the State organization. The committee has sought to act for this larger body of organized physicians, believing that the State Society represented them as well as the members on the State roll. We have the names, and have, in a large measure, had the support of over 3,500 physicians in the State.

The Journal was of great aid to the Legislative Committee in furnishing printed matter and in enabling us to reach many physicians throughout the State and keep them informed of our movements so that they could act intelligently when called on for co-operation.

At the first meeting of the committee, held nearly a year ago in Chicago, it was determined that the most serious need of the profession was better organization. After consulting the profession the committee also decided to formulate some measures for legislative enactment, and to do everything in its power to support all other good bills which were presented; but our first efforts were to be in the direction of promoting organization. We believe that the most efficient means for securing proper legislation is thorough organization and numerical strength. Our legislators will respect the wishes of their constituents if presented in the right way and with sufficient force.

We believe that money spent in promoting better organization is well invested. To this end your committee entered into correspondence with the State Societies in New York, Indiana, Connecticut, and a number of other states which have given serious consideration to the question of organization. Through the assistance of these societies we became better acquainted with the movements of the day regarding organization.

Following this correspondence we ad-

dressed the following letter to every member of the Illinois State Medical Society, and solicited their thoughtful consideration and reply to the matters therein contained. The letter read as follows:

Dear Doctor:—Ever since the last meeting of the Illinois State Medical Society, your Committee on Medical Legislation has been studying the existing medical laws and the means for their improvement. There are many questions arising for solution which should interest every doctor. From our correspondence with similar committees in other states and from action taken at the last meeting of the American Medical Society, we believe that there is a general awakening in the profession to the necessity for more active and harmonious work.

The State of New York has recently entirely organized its medical association on what is known as the Connecticut plan. In brief, this plan makes membership in the local society include membership in the State Society. The fees are all paid to the local society, thus the local society is made the basis of the whole organization of the state. We believe this to be the correct principle of organization.

Your committee is thoroughly convinced that if Illinois is to maintain its place in the first rank, we must immediately improve our medical organization.

* * * * *

We are now addressing every member of the State Society on this point and asking them for suggestions and assistance in changing the present conditions.

* * * * *

The committee sees plainly that they will be unable to secure or maintain the most desirable legislative measures without a more complete organization behind them. Among the questions which are demanding solution in our State, we would suggest the following:

A thorough organization of city, county and state boards of health with proper relations to each other.

More adequate sanitary laws, especially those relating to schools, manufactories and quarantine.

To secure legislation to protect against tuberculosis and other preventable diseases.

To protect against vicious legislation, for example, anti-vivisection and anti-vaccination.

To protect from blackmailing, and to protect against unjust mal-practice suits.

To secure proper recognition and expert testimony.

To protect the sick from quacks and charlatans.

To protect and improve the medical practice act and to secure a special board of medical examiners aside from the board of health.

To secure proper regulations for the protection of drinking waters, and in fact to aid in securing just and impartial legislation whenever and wherever needed.

To secure equitable medical laws throughout the United States, with some practical form of reciprocity between the states.

To secure the appointment of reputable and honorable medical men wherever public services of physicians are required throughout the state.

At its last meeting the State Society instructed the Judical Council to take the matter of appointment in hand, but they must have the co-operation of the whole profession if anything is to be accomplished.

These and many other questions are demanding the attention of the profession. We should be thoroughly alive to their importance and realize that the only way to secure any needed enactments or suitable appointments is through harmonious organization of our profession. We must all be willing to submit to the will of the majority. We have all, no doubt, been chagrined to hear members of the Legislature say that the only thing which stands in the way of securing desirable medical legislation is lack of harmony in the profession. We should remove the cause for this now just criticism.

Your Committee hopes to have your

hearty co-operation in pushing forward the work along these lines. We would like at your earliest convenience, to have your ideas about these matters. We would like to have the names of men in your locality not already members of the State Society who are likely to take an active interest in these matters.

We are directed by the State Society to organize the profession along these lines and hope to have your assistance in getting in touch with the public spirited physicians of your locality. The profession must be organized to protect the interests of the sick as well as its own interests.

Please let us know your views and those of your colleagues regarding these matters.

Hoping to have the pleasure of hearing from you at an early date, I am, in behalf of the Committee on Medical Legislation,

Very truly,
(Signed) Carl E. Black,
Chairman.

Carl E. Black, Jacksonville,
James A. Egan, Springfield,
E. Fletcher Ingals, Chicago,
Geo. N. Kreider, Ex-Officio, Springfield.
Committee.

Over one hundred replies were received. They gave the Committee an immense amount of valuable information, and aided us to determine the subjects in which there was most interest, and to follow the trend of prevailing medical thought.

Following this your Committee entered into correspondence with the officers and every local medical society in the State, numbering more than eighty. From these societies we secured all the information we could. We got the time of meeting, the names of their officers and list of their members. Four-fifths of the societies in the State have responded cordially to our correspondence. Most of these have been induced to appoint a "committee for the good of the profession." Thus carrying out the resolution adopted by this Society a year ago.

These Committees have been of invaluable assistance in carrying out the work of the Legislative Committee. Your Committee has thought best to put much of the information obtained into a somewhat permanent and useful form and to that end we have made a card index.

First. Of the membership of the State Society showing to what local society or societies each member belongs. Also whether or not he is a member of the American Medical Association. We notice that many members of our State Society are credited to no local society. This is due to two causes. First, to the fact that many local societies have ceased to exist, or second that the member has kept up his connection with the State Society and failed to keep up his connection with the local society.

We also have a card index to the membership of each local society in the State so far as we have been able to induce the secretaries to respond to our requests. The membership of the Chicago Societies are kept in one alphabetical index, but each card shows to what Chicago societies the member belongs.

From time to time corrections to these lists have been secured and we believe that most of the society lists are fairly correct. Of course changes are constantly taking place and corrections must be frequently made to have them in good condition.

From these society lists we have made a complete alphabetical list of all members of local societies. This list shows the name and residence; to what local societies the member belongs, and whether or not he is a member of the State Medical Society, also whether he has shown active support to the Committee's work.

It was apparent that the funds at our disposal would be insufficient. We decided on the formation of a Legislative League. Letters were sent to all members of the State Society, and of all affiliated societies requesting their moral and financial support.

Nearly four hundred physicians have voluntarily subscribed one dollar each for the support of the Committee's work.

This has been a great help. It at once enabled us to determine what physicians were public spirited enough to aid in our work. It also furnished funds for paying necessary expenses over and above what the State Society could supply.

The State Society was hardly able to carry the financial burden. In return for this assistance the State Society has sent the Journal to each member of the league who was not already a member of the State Society. It is very desirable that such a league be continued within the State, and local organizations, and that its influence be extended. There are many ways in which it can be of great help.

A number of local societies, whose members have given the Committee support, both morally and financially, have not a member who belongs to the State Society. We believe that the Committee's work has been of great value to our President in securing increased membership in the State Society, and trust that the influence of this work will keep up in the future.

The city of Chicago seemed the most difficult problem in the beginning, but this worked out very satisfactorily. Our organization in Chicago accomplished splendid work. All, who had shown an interest, and given support to the Committee, were organized under twenty chairmen, over which the Chicago member of your Committee acted as general chairman. Thus any information wished, or work required, could easily and quickly be accomplished. This gave us a very efficient organization in Chicago, and accomplished great things for Legislation. The value of this Committee is illustrated by the work done in securing the passage of Senate Bill No. 264, the Vital Statistic Bill.

The chairman of the Committee to which this Bill was referred in the Senate was, for some reason unknown to us, opposed to its enactment. The Bill was reported back to the Senate with the recommendation that it do not pass.

As soon as this state of affairs came to the knowledge of your Committee we notified the profession. They at once requested of this Chairman, as well as of the members of his committee, that the Bill be referred back to the committee for proper consideration. The pressure was so great that the Chairman asked the unanimous consent of the Senate to a reconsideration of this Bill.

Your Committee then went before the Senate Committee and explained the Bill. The Chairman still opposed it, but the members of his Committee were unanimous, with one exception, in voting that it be referrred to the Senate with the recommendation that it do pass.

Following this the profession expressed themselves positively to the members of the Senate and House with the result that this Bill which had received, what was supposed to be its death blow, was revived and passed through both Senate and House within three weeks. This illustrates what an organized profession can do when they have a true cause to work for. The fact that the members of the profession were positive in their requests for the passage of these Bills influenced the members of the Legislature.

We often hear members of the profession express disappointment at their results in working with politicians and political organizations. This, we think, is usually due to a lack of systematic and organized effort. The politicians desire to serve the majority of their constituents. Majorities elect.

As physicians, we are in the habit of working alone, and we feel that when we approach a politician and express to him what we believe to be right, he should accept our opinion just as he does when he is our patient. We usually find that he cannot do this and are disappointed. We should be more practical, and devote our energies to organization so that we may express the views of a large number.

Your Committee has uniformly received courteous and considerate treat-

ment from the members of the Legislature. We have been made to feel that we belong to a profession which commanded their respect. The Chairman of this Committee, in his last year's report, pointed out that the decisons of the higher courts were almost always in support of the profession. Your Committee believes that whenever the profession is thoroughly organized, our legislators will not fail to grant any reasonable demand.

SUGGESTIONS FOR THE FUTURE.

Organization must be the key to success. We trust that everyone will read carefully and study thoroughly the report of the Committee of the American Medical Association on organization. This is a very valuable and instructive report, and one to which everyone of us should give careful study.

There is lack of uniformity in organization throughout the country, which interferes with satisfactory work. The local societies are not enough in touch with the State Society, and the State societies are not enough in touch with the national organization. They have grown up according to local needs and have been developed according to local energy.

It is now time these organizations should be taken in hand and some comprehensive plan of co-operation adopted. We believe that our county and local societies should be branches or parts of our State Society. The State Societies should make up the American Medical Association. Our State Society should be a division of our American Medical Association. To put it differently, we believe that the American Medical Association should be one great medical organization: including many state divisions and the state divisions should include numerous local branches.

For example: Peoria County Society should be the Peoria County, Illinois, Branch of the American Medical Association. The Illinois State Medical Society should be the Illinois Division of the American Medical Association. Only one set of dues should be paid for all, and the money should be paid to the Peoria County Medical Society, whose treasurer should forward the proper portions to the state and national organization. No county in this State should be without some medical organization, which should be a branch of the state and the national associations. It might be desirable for several small counties to join their forces for literary and scientific efforts.

When a man is elected president of a county society, that should also constitute him a member of the business committee of the state organization, and that when a man is elected president of the state organization, that should constitute him a member of the business committee of the national organization. In this way the national organization will have the active, energetic men of the state organizations to transact its business, and the state organization will have the active, energetic men of the county organizations to transact its business.

This is similar to the plan which has recently been adopted in New York and several other states, and similar to the plan which is recommended by the American Medical Association. Such an organization would be of immense help to our Legislative Committee during the session of the Legislature. Thus instead of having to communicate with several hundred men in different parts of the state who are only loosely organized, your Committee would only have to communicate with the active officers of each local society, who in turn would communicate with his members and secure the necessary co-operation.

The profession would then be in easy and positive touch with every member of Legislature. By a few letters or telegrams we could exert an immediate influence on any one member or on all the members, as the circumstances might demand.

We trust that our State Society will seriously consider these questions and put itself in line to promote a harmonious and

complete organization of the whole country as well as of all the counties of our own State.

If such methods are pushed energetically in less than five years this society should have at least 5,000 members. We could go before our legislature or our executive with the assurance that all our reasonable suggestions as a profession would be followed.

In conclusion we would thank the members of this Society and the profession of the State for the hearty co-operation and support which they have given your Committee. It is only by such co-operation that effectual work is made possible.

Carl E. Black,
Chairman.

THE PRESIDENT: What will you do with the report of the Legislative Committee?

DR. CORR: I move its adoption. Seconded.

DR. WEBSTER: I move, as an amendment, that a vote of thanks be extended to the committee for its efficient and very valuable work. Seconded.

DR. PETTIT: Dr. Webster took the words out of my mouth. I want to support the motion extending a vote of thanks for the purpose of making some remarks. I want to say, as a former member of the Committee on Legislation, that I can fully appreciate the laborious and magnificent work that that committee has done. It is simply stupendous. I could not help, as I listened to that report, thinking how much time the committee devoted to the work of the legislature, I know that railroad, insurance and other corporations have paid attorneys $10,000 to do work that has been of less advantage to the public or to the corporation, and they have not accomplished one-tenth part as much as this committee. It is wonderful what the committee has done. The committee has done this work because its members had the ability and because they were backed by the profession. It is an object lesson of what can be accomplished. If we only follow up the matter of organization, instead of a few hundred, we will have several thousand. We can turn the state up-side-down on any question we see fit. I second the amendment.

The motion as amended was carried.

THE PRESIDENT: It has been suggested that the society adopt some expression to be taken to the American Medical Association at St. Paul. I would entertain a motion to the effect that this society recognizes the plan of reorganization as recommended by the Committee on Reorganization of the American Medical Association.

DR. INGALS: I make such a motion. I think, however, there is one defect that I did not notice until the Chairman was reading the report. It provides that the President of the State Medical Society shall be the member of the House of Delegates of the American Medical Association. That is unfortunate. It should be the retiring president. I move you, that this be inserted in the report, and with this amendment the report be communicated to the Amercian Medical Association by our retiring president. Seconded and carried.

Continued next month.

CLERGYMAN VERSUS PHYSICIAN.

Donald R. had accidentally swallowed a piece of money, thereby creating great consternation in the maternal mind. "Send for the Doctor! Send for the Doctor!" she cried. No, said Master Donald, not at all alarmed. "Send for the preacher." "Why do you want the preacher, Donald?" queried the mother fearing the worst. "Why Papa says he can get money out of anybody."

MARRIAGES.

Dr. Thomas E. Macauley, Gilberts, Ill., and Miss Jessie B. Davison, Genoa, Ill., July 17, 1901.

Dr. A. E. Mowry, Chicago, and Miss Ruth Lehman of Decatur, July 29, 1901.

Dr. Elmer A. Irwin and Miss Emma L. Jenks both of Chicago, July 9, 1901.

Dr. Geo. Doerbecker and Miss Aleda Bower, both of Waukegan, July 3, 1901.

The Illinois Medical Journal.

The Official Organ of the State Medical Society.

EDITOR—George N. Kreider, M. D., Springfield.

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CITY SOCIETIES.

Chicago—
Academy of Medicine—J. G. Kiernan, M. D.
Electro-Medical—Richard H. Street, M. D.
Gynæcological—C. S. Bacon, M. D.,
Neurological—C. H. Lodor, M. D.
Pathological—Geo. H. Weaver, M. D.
Physician's Club—L. H. Mettler, M. D.
Rhinological and Laryngological—J. E. Rhodes, M. D.
Society of Internal Medicine—Robt. B. Preble, M. D.
South—J. S. Davis, M. D.
West—Gustavus M. Blech, M. D.
Decatur Medical—C. Martin Wood, M. D.
Jacksonville Physician's Club—D. W. Reed, M. D.
Peoria Medical—E. M. Eckard, M. D.

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Central Illinois—C. R. Spicer, M. D., Taylorville.
Fox River Valley—H. J. Gahagan, M. D. Elgin.
Military Tract—C. B. Horrell, M. D., Galesburg.
North Central—Geo. A. Dicus, M. D., Streator.
Southern Illinois—O. B. Ormsby, M. D., Murphysboro.
Tri-County—Leroy Jones, M. D., Hoopeston.
Western Illinois—H. H. Chapin, M. D., Whitehall.

All communications should be addressed to the Editor, 522 Capitol Ave., Springfield, Illinois.

The Society does not assume responsibility for any statements or opinions published in the JOURNAL.

The JOURNAL is published monthly. The subscription price is $3.00 per annum in advance. The JOURNAL is furnished free to the members of the Society.

Entered at the postoffice in Springfield as second class matter.

SEPTEMBER 1901.

OTHER STATE SOCIETIES—TEXAS.

From Connecticut, one of the smallest and medically best organized states we turn to Texas, the largest state in the Union. Approximately the number of practitioners in Texas in 1900 was 6,000. The sects do not appear to have very many devotees in the South, and probably at least 5,600 of these are regulars. Only about 270 of them are members of the State Society. Something like 1,000 physicians are members of the 28 city, county and district societies, of which only 15 societies are affiliated with the State Society. The State Society met at Waco in 1900, and from a handsome volume of transactions we gain much of the information for this review. Entrance to the State Society is permitted by its constitution to "Every regularly educated physician within the limits of the state who is a graduate of a regular medical college in good standing and who adopts and conforms to the code except those of the negro race, etc." We are greatly tempted here to put in a plea for the colored professional brother who we feel should be judged on his scientific attainments and not on the accident of birth, but perhaps we are not familiar enough with existing conditions to pass judgment. The annual due is $5.00 and the initiation fee is $2.50. The plan of organization is complicated by the fact that a man

may belong to the society and be also a delegate from an affiliated society. If he wishes to represent a society he must bring along an extra $5.00 from that society.

We call especial attention to the easy requirements for entering the society because in our society there are found some members who advise taking in members in a similar way and disregarding the local societies. Notwithstanding the easy access to the Texas society, it is sadly lacking in members. The local society is truly the basis of all society work, and we believe should in every case pass on the character of an applicant to the State Society.

Like all small societies with great aspirations a large number of officers are required to properly conduct its functions. There is a president, 3 vice-presidents, a secretary, a treasurer, a judicial council of 12 members, two legislative committees, each with 5 members, a campaign committee of 4 members, a committee on organization of medical societies of 13 members, a chairman and secretary of 8 different sections. Besides this 12 members are assigned to duty on special subjects and last but not least there is an orator, to whom we will refer later. In all 81 names—about 30% of the membership—appear as officers of the organization. This seems strange in the face of the fact that but 36 officers are provided for by the constitution. The annual volume is distributed about six months after the meeting, illustrating one of the greatest objections to this manner of publishing the transactions. Many interesting papers appear in the volume of 400 pages. We can only give space to short extracts from the paper of Secretary West of Galveston and Orator Joe Becton of Greenville. Dr. West in a paper on the Maladministration of Public Medical Affairs in the State of Texas, speaks burning words which have an application in many a state far distant from his own.

He says:

In regard to the administration of our hospitals for the insane, the people who pay the taxes for the maintenance of these institutions, the friends of the inmates and the unfortunates themselves have the right to demand that the enormous sums required for the erection of the necessary buildings and the support of the institution shall be so expended as to obtain the best results. In other words, in assuming the care of its mentally defective population the state is obligated not to provide only a place of imprisonment for these people, to prevent injury to themselves or others, but to avail itself of all those means of cure and amelioration in the condition of the insane made accessible by modern enlightenment upon the subject. A prerequisite in the accomplishment of this end is to place at the head of our insane asylums medical men whose mental endowments, education and experience, along these special lines, enable them to successfully grapple with those recondite and difficult problems they are called upon to solve. If the state, for any reason whatsoever, political favoritism, inadequate compensation, or short and uncertain tenure of office, fails to obtain and keep in its employ the best medical talent available within its borders, then the system of appointment and management is fatally and fundamentally defective, and should be corrected.

* * * * * * * * * * * * *

In event of a new administration, if our officer is a shrewd politician, he may even stand a chance with the new governor, but if so misguided as to imagine that a strict attention to his business and an increasing ability to perform it will retain him in office, woe betide him; his official decapitation is sure to follow.

The following extract from the oration of Dr. Joe Becton of Greenville is too good to be buried in a volume of transactions. It may serve to divert our readers for a few minutes during the heated term.

Referring to himself he said:

While I was never a pretty boy, I was a most promising child, so much so that my fond father had promised all the kith, kin and connections to make a president of me. Having finished the schools at home, I was sent to college. Returning after the first year, I was truly pained, my father not seeming elated, as I had expected; and my disappointment deepened into chagrin when I heard him say, "Mama, (as he always addressed my mother), that boy can never get to the presidency. I will have to make him a governor." I went and came the second year. He seemed more worried than ever. This time he said, "Mama, he cannot make a

Governor; I will do my best to get him in the State Senate. I went and came the third year. His troubles now seemed to have developed into a painful sadness that bordered on despair. This time he says, "Mama, can't even get him in the Senate, but with a good, liberal expenditure of money and with my close personal friends to pull, undoubtedly I can land him in the Legislature." The fourth and last year, when school days were over, and I had come home to enter the theater of life, full of the buoyance of young manhood, with bright and dazzling pictures of future glory and greatness, expecting a "well done" from my father, imagine my disappointment! His grief stricken face was actually pitiful and one would have thought that the light of his life had actually sunken into an oblivious sea. I'll never forget—it was a beautiful blue evening in June; a soft gentle breeze sprang up, cooling the burning air after the heat of the day, bringing with it the odors of a thousand flowers. With his head resting low on his breast, and passing his finger across his forehead, as is his habit when in grief or meditation, he says, "Mama, when the end of this mortal life shall come, ere the sun of existence sinks beyond the occident of time, and ere the winding sheet of eternal night is wrapped about me, if I can only look beyond the curtains of my couch and see that boy is out of the penitentiary, I will die happy."

Every doctor remembers his first few years; they are so agonizing, and mine were especially so, for against pa's voice and vote I made a doctor. When I came home and began to seek a location, he says, "Son, go like the trend of the empire and the march of civilization toward the setting sun. Go to that beautiful garden, the modern Paradise, the Panhandle of Texas, where the glorious blue curtain of the sky and the sheeny white sails of the mirage gleam in the gold of heaven's sun and break in wide smiles of springtide glory over the world. Yes, my boy, go; and get wealth and fame; like Magellan, write your name in the sky." Well, I went, and at the end of three years and three drouths—WHAT! Alas! That bright, delusive vision had forever fled like the baseless fabric of a dream. My only accumulations were a wife and two small children. My ambition now was only to get shelter and bread. Securing a railroad pass, I crept back to the haunts of man and civilization, with barely enough clothes to dust a fiddle.

CHICAGO WATER.

Why the Health Authorities Continue to Report It Daily as More or Less Unsatisfactory.

The large amount of money expended in constructing the Chicago Sanitary Canal, and the many positive assurances that as soon as it was completed and the water turned into it, the water furnished to the people of Chicago from Lake Michigan would be free from all sewage or other injurious impurities, has led to many expressions of surprise and disappointment at still finding in the daily papers that some of the city water supply was usable, other portions suspicious or bad, and only occasionally that it was all good. The drainage canal having been announced as complete, and the lake water carrying with it much of the Chicago sewage passing through it many months, we are asked to explain why the Chicago hydrant water remains so much of the time impure. The reasons are obvious and easily stated. The completion of the drainage canal with sufficient capacity to admit of the passage of from 300,000 to 600,000 cubic feet of water per minute, according to the requirements of the law a few months since, neither gave to the Chicago river sufficient capacity to supply the canal with the necessary amount of water, nor prevented about one-half of the sewage of Chicago and all of that of the neighboring towns on the lake shores north and south of the city from going into the lake as heretofore. Consequently when the big drainage canal was completed and enough water was crowded through the river to approach the minimum 300,000 cubic feet per minute, the center piers of the bridges with the short curves and narrow places in the river caused so much obstruction to navigation that the drainage board have been obliged to keep the amount of water passing through the canal much below that required by the drainage law; and the non-completion of intercepting sewers for turning more than half of the sewage of Chicago into the river or the canal instead of into the lake, has thus kept the water supply for Chicago nearly so much exposed to pollution as before the drainage canal

was completed. Such will continue to be the case until the center pier bridges have been removed, the tunnels under the river lowered, and an extensive system of intercepting sewers constructed to keep the sewage from entering the lake, at an aggregate additional cost of from $30,000,000 to $50,000,000. If all these things are ever accomplished, and the full volume of 400,000 or 500,000 cubic feet of water per minute holding in suspension all the sewage of Chicago and its suburban towns is actually passing through the canal, then will the Chicago water supply be substantially free from pollution. But to determine the actual effect of all this on the sanitary condition of the Illinois and other river valleys and the permanent level of water in Lake Michigan will require another full decade of time.

N. S. Davis.

MISTAKEN NOTIONS OF HYDROPHOBIA.

There are very few diseases which have been decorated by the public with a greater variety of fanciful superstitions than hydrophobia. The belief that reason has flown and that the human victim of hydrophobia is truly "mad" when the first spasms of the disease are witnessed; the opinion that the bite of a rabid animal confers upon an individual the ability to bark; the faith that prevails in certain localities in the virtues of the mad stone and in the therapeutic value of the raw livers or brains of mad dogs are all erroneous and ungrounded ideas of hydrophobia. It is by no means a rare occurrence in our large cities for a number of the powerful officers of the law to become quite exhausted in their efforts to retain recumbent in the patrol wagon a patient with hydrophobia whose only desire is to be allowed to breathe unmolested; a continuous struggle takes place until the hospital is reached under the impression that the person is akin to a rabid animal, and therefore extremely dangerous. The mistake is often made of strapping the patient to the bed in the hospital long before the mental faculties show any signs of the impairment that shortly precedes death. The premature killing of a rabid dog after several persons have been bitten but before measures have been taken to determine the existence of rabies in the animal is equally open to censure. Many animals have been slain in this manner and without doubt many persons have lost their lives among communities intelligent enough to appreciate the preventive treatment instituted by Pasteur.

There are many reasons contributing to the misconceptions entertained by the laity regarding hydrophobia. It is a disease that is seldom met with; its symptoms are peculiar and there are no gross lesions to serve as object lessons; even the primary wound has usually become healed when the disease has its onset. Another reason for the popular vagaries about rabies exists in the absence of unanimity exhibited by the profession in regard to the teachings of Pasteur, more especially the prophylactic treatment by inoculation with the attenuated virus as obtained from rabbit's spinal cord. The recent invective article by C. W. Dulles* is a good illustration of this. The writer claims that the treatment has not lessened the death rate from rabies. It is well known that animals may be protected against rabies by inoculation experiments; as regards other infectious diseases, protection is conferred by the inoculation of anti-bodies of one form or another in animal experi-

*Hydrophobia and the Pasteur Methods, Med. Rec., July 13, 1901.

ments, and this treatment has been extended to man with great success. If begun early enough, the Pasteur treatment protects against rabies, at least such is the opinion of the majority of the best informed physicians.

The absolute certainty of the fatality of hydrophobia in cases that have had no preventive treatment should be sufficient reason for the boards of health to begin a campaign of education among the people in regard to rabies, for they could frequently render valuable assistance in establishing an early diagnosis. N. G. Keirle* has referred to the advisability of keeping the rabid animal when persons have been bitten and when it can be done safely; if the animal recovers its health, treatment may be discontinued; in case the animal dies and treatment has not been initiated, it should be begun at once. But experience has shown that even this delay may be dangerous. A method of determining the existence of hydrophobia much earlier has been followed by M. P. Ravenel and D. T. McCarthy.† This consists of examining the intervertebral spinal ganglia or those of the cervical sympathetic for the changes described by Nelis and Van Gehuchten. The ganglion cells are found to have suffered certain morphologic and tinctorial alterations that would indicate necrosis; also, the capsules in which they lie and the ganglion cells themselves are invaded by small round cells. Ravenel and McCarthy found such changes in 11 dogs, 1 cow, 1 horse, 15 rabbits (experimentally inoculated), and in one case of human rabies. Dr. Ohlmacher of the Ohio Hospital for Epileptics at Gallipolis demonstrated some excellently prepared specimens showing this process at the meeting of the American Medical Association at St. Paul, June, 1901, in the Section of Pathology and Bacteriology. This procedure of examining the ganglia of the rabid animal allows a positive diagnosis to be made in a few hours; animals should be inoculated at the same time for the absence of histological changes in the ganglion cells and their capsules does not carry with it the assurance that rabies was not present. It will be remembered that Victor Babes of Bucharest many years ago described changes in the medulla in dogs that he called the "tubercle of rabies."

To any one who has witnessed a death from this furious and rapidly fatal disease any method of hastening a diagnosis of rabies in the animal will be most welcome. With the discovery of the germ of rabies the missing gaps will be closed up and there will be, it is to be hoped, less skepticism about either its infectious nature or the effectiveness of the protective inoculation in preventing an outbreak of the disease in a person already infected.

*Practical notes relative to rabies, Med. News, July 6, 1901.

†The rapid diagnosis of rabies, University Medical Magazine, Jan. 1901.

STATE HISTORICAL LIBRARY.

While paying a visit to the State Historical Library recently we were surprised to find only one or two volumes of the transactions of the Illinois State Medical Society on the shelves. Owing to the Chicago fire we believe that a very few volumes of the proceedings prior to 1870 are in existence and before it is forever too late we make an urgent call upon our old members so that a complete file may be found in the Historical Library in the capitol and also one in the Newberry or other public library in Chicago. If members having the early volumes which they care to donate will inform the officers of the Society they will pay the necessary expense to secure them in these two safe places.

BARNES COLLEGE CONDEMNED.

The Barnes Medical College of St. Louis, Mo., has been declared to be not in good standing by the Illinois State Board of Health. This action will meet with the approval of all medical men who are familiar with the lax system in vogue at the school for a long time. There are other schools under suspicion which will meet the just condemnation of the profession unless there is a change in their methods.

Correspondence.

INSANITY AND MARRIAGE.

To the Editor:

In connection with the paper of Dr. F. C. Winslow on the above topic, it will be of interest to your readers to know that the Supreme Court of this State has lately affirmed the decision (rendered August, 1899) of Judge Tuley in the case of Pyott vs. Pyott. In this case Judge Tuley decided that for marriage to be valid the party must be able to understand the nature of marriage and its consequences. This makes the test whether there is sufficient mental capacity to give intelligent consent. If the incapacity be such that the party be incapable of understanding the nature of the contract itself and incapable from mental imbecility to take care of his personal property, such persons cannot dispose of his own person by a marriage contract any more than by any other contract. The doctrine applied by the United States Supreme Court in Allore vs. Jewell (97 U. S. Reports), appeared to Judge Tuley "to be particularly applicable to this case. It is there held that if a person from infirmity and mental weakness is likely to be easily influenced by others, transactions entered into by such a person without independent advice will be set aside if there is unfairness in them. Whenever there is great weakness of mind though not amounting to absolute disqualification arising from age, sickness or any other cause in a person executing a conveyance and a consideration given if the amount is grossly inadequate, a court of equity will upon proper and seasonable application of the injured party or his representatives, interfere and set the conveyance aside." In this case as in many other marriages performed by clergymen, mental defect of the very decided nature of senile dementia, was not detected. This cannot surprise physicians of hospital experience with the insane who know how frequently escaped lunatics are married, nor physicians who recall the frequency with which nostrums and fake cures are endorsed by clergymen.

Jas. G. Kiernan.

THE CHICAGO WATER SUPPLY.

In view of the recrudescence of typhoid fever in Chicago, we give space to the editorial by Dr. N. S. Davis on this subject, and the following statement from Dr. J. A. Egan, Secretary of the State Board of Health, made in the Inter Ocean of July 17th:

The assertions of Dr. Herman W. Spalding, chief medical inspector for the city health department, and Alexander J. Jones, president of the drainage board, that only a "mere portion" of Chicago's sewage is now disposed of through the sanitary channel, met with contradiction from Dr. James A. Egan, secretary of the state board of health. Dr. Egan said yesterday:

I want to go on record with the Inter Ocean in its editorial of June 18, condemnatory of such entirely erroneous and misleading statements, the more astonishing because they are the utterances of scientific me... The absurdity of President Jones' position, at least, is demonstrated by comparison with the figures of Professor E. O. Jordan, who made the greater number of the bacteriological investigations for the sanitary district in the experiments of 1899. Professor Jordan's opinion was that as high as from 85 to 90 per cent of the total sewage of Chicago was disposed of through the canal.

The conclusion of President Jones and Dr. Spaulding is that three-fourths of the sewage of Chicago is at the present time being emptied into Lake Michigan. I am prepared to prove, on the contrary, that less than one-fourth of the total pollution of the city is now deposited in the lake. In this connection it may be well to enumerate the several causes for the pollution of the latter. These are:

1. The stirring up by winds of the thousands of tons of filth deposited on the bottom of the lake. The removal of this cause is only a question of time, as the filth which accumulated before the drainage canal was put into operation is what is causing the trouble today, and eventually will disappear.

2. The dumping of river dredgings into the lake. The bottom of the river is now a mass of filth, and the transferring of this to the lake can only be regarded as a most pernicious practice. It is equivalent to dumping into it an equal amount of raw sewage.

3. The sewage of municipalities on the immediate north and south of Chicago.

4 (and last), the sewage of one-fourth of the population of the city. For more than a year not a small fraction, but more than three-fourths, of the sewage of Chicago has passed into the Desplaines river, via the drainage canal and the Illinois and Michigan canal. It is a mistaken idea that all of the sewage now dumped into the river goes into the drainage canal. It must not be forgotten that the Illinois and Michigan canal is still in operation and receives the sewage of the stock-yards region.

The sanitary district of Chicago has spent, according to reports, $15,000 in investigating the pollution of the Illinois river and its tributaries; in other words, the effect of the canal on lower Illinois. Now, if but a mere portion of the sewage of Chicago enters the drainage canal at the present time, of what value have been these experiments?

State Pure Food Commission Thinks Prevalence of Typhoid Due to Ice, not to Lake.

Flagrant breaking of the law forbidding the sale of impure ice for domestic purposes has been discovered in Chicago by the State Pure Food commission. Commissioner Alfred H. Jones telegraphed to all his inspectors throughout the State to report at once in Chicago and begin the most thorough investigation ever attempted by them. Not an ice plant will escape examination, and all found guilty of selling impure ice for domestic use will be prosecuted.

Roused by hundreds of complaints from citizens, Commissioners Jones and R. M. Patterson met at Springfield, and decided to take action. It is claimed by the commission that nearly every ice firm in Chicago sells ice fit only for cooling and packing purposes, and that the frequency of typhoid fever is due to this breaking of the law.

Astounded at Disregard of Law.

"We are astounded at the open disregard of the law by Chicago ice dealers," said Commissioner Patterson yesterday, a few moments after he stepped from the train that brought him from the conference at Springfield. "Hundreds of thousands of tons of ice, cut from pools which are stagnant, are daily being sold to housewives. Hardly an ice chest but is a menace to public health and hardly a glass of water cooled by chopped ice but is dangerous to the one that drinks it.

"Ice dealers sell this impure stuff with impunity. You can buy it from almost any wagon with absolutely no guarantee that what you get is fit to use. Hardly a company but is guilty and not one will escape if we can help it."

Frozen Animal in Ice.

The second complaint to the local office was against a large ice company. A citizen of Buena Park wrote that he sent his son out to buy 100 pounds of ice from a passing wagon, and it was placed in the refrigerator. The next morning when the doors were opened the servant was greeted with a smell of decomposition so strong that she closed the box and informed the mistress of the house. Investigation revealed the fact that the smell came from an animal that had been frozen in the ice.

Local Societies.

The Morgan County Medical Society met in regular session Thursday, July 11, 1901.

Members present: Drs. Adams, Baker, Black, DaCosta and Josephine Milligan; Miss Grace Dewey and Mr. Stacy as visitors.

In the absence of the president Dr. Baker presided.

Appointee for August—Dr. Crane.

The afternoon was given to Dr. Black's subject, "Rectal and Anal Fistulae." The essay treated the subject in an interesting and exhaustive manner and was followed by reports of cases that emphasized the teaching of the paper. There was a lively discussion.

Edward Bowe, Official Reporter.

Champaign County Medical Society met at Julia F. Burnham Hospital, Aug. 15, 1901, at 2:30 P. M. meeting called to order by Vice-President Dr. John Martin; usual business of Society was transacted after which a paper was read by Dr. Mandeville on the **history of medicine.**

Dr. McKinney of Gifford reported a case of **typhoid fever** in which temperature went as high as 107½, with recovery. Members present were Drs. Martin, Spears, Schoengerdt, Bartholow, Johnson, Burres, Mandeville, McKinney and Wall. Society adjourned to meet Oct. 17- 1901.

A. S. Wall, Official Reporter.

Decatur Medical Society.

The Society met in regular session Thursday evening, July 25, 1901. The minutes of last meeting were read and approved.

Dr. W. C. Bowers read a paper on **Summer Diarrhoea of Children.** In the discussion which followed Dr. Lonergan advocated the use of the sulpho-carbolates. He used opiates sparingly.

Dr. A. F. Wilhelmy recommended nitrate of silver in weak solution as an enema.

Dr. Randall stated that the mortality 25 years ago was much greater than at the present time, and believed the present low mortality was due to care in preparation of foods.

Dr. A. F. Wilhelmy read a paper on **Scarlet Fever,** which brought forth general discussion.

Drs. Grimes, Pollock and Stoner were appointed a **Program Committee** for the next meeting. Adjourned.

C. Martin Wood, Official Reporter.

Winnebago County Medical Society met at Rockford, Aug. 13-1901.

The following papers were read:

Tetanus—Dr. T. H. Culhane, Rockford.

Cholera Morbus—Dr. F. J. Weld, Rockford.

Insolation—Dr. J. A. Johnston, Byron.

There was a large attendance and a full and interesting discussion of the papers.

The program committee announced that the plan was to have some Chicago physician or surgeon read a paper at the September meeting. New doctors in Rockford are: Dr. Kindee, (from Elgin I think). Dr. Emil Lofgren, (class of 1901, Chi. Med. Col.)

S. R. Catlin, Official Reporter.

White County Medical Society. For some reason our society has been inactive. At the last annual meeting we did not have a quorum and have not had since and on that account the officers for this year have not been elected.

I hope however that we are waking up and will have a meeting of the society on October 9th next. I think that at our next meeting we will most likely arrange to have only two meetings in the year instead of four and have them in April and October as it is almost impossible to secure an attendance in January and July.

W. A. Steele, Official Reporter.

The Warren County Medical Society convened its semi-annual meeting at Monmouth, May 3, the president, Dr. Cynthia A. Skinner, in the chair. The following officers for the ensuing year were elected: W. S. Holliday, Monmouth, president; A. R. Graham, Little York, first vice president; J. M. McClanahan, Kirkwood, second vice president; W. A. Wells, Monmouth, secretary; E. L. Mitchell, Monmouth, treasurer.

The president appointed W. S. Holliday and Adelle R. Nichol delegates to the State Medical Society meeting.

W. H. Wells presented a girl twelve years old, with **a large phantom tumor.** His diagnosis was hysteria, and the doctor considered from the history of the case that prenatal influence had much to do with the etiology.

E. L. Mitchell reported two cases of **tetanus treated with carbolic acid,** one terminating fatally, the other in recovery.

The source of infection in the fatal case was unknown. In the other, the patient was wounded by stepping on a nail. In the case that recovered a child aged four years received a hypodermic injection of a 2 per cent solution of carbolic acid every eight hours from the time he was first seen. The only unfavorable symptom it produced was a murky condition of the urine.

The amount was then lessened, but continued throughout the attack, which persisted for about thirty days. In the other case this treatment was not commenced until after the second day.

Adelia R. Nichol, Official Reporter.

West Chicago Medical Society, after completing its organization decided to commence scientific work on the last Thursday of August, taking only a vacation of six weeks.

The Society being one of the latest to affiliate with the State and National Societies a word or two as to its *raison d'etre,* history etc., may not be amiss.

While it is true that there may be such a thing as too many medical societies and that it is better to have a few and strong rather than many weak ones, the West Chicago Medical Society fills a long felt want.

Most of the leading societies meet down town. The dues are larger than many care to pay and a good many physicians do not care to go down town in the evening. Besides there seems to prevail a general impression that leading specialists only are wanted for purposes of reading and discussing papers.

Whether or not these notions are right is immaterial; enough that many did not care to join and would stay away from a local and therefore from the State Society.

Chicago is too big a city for one general medical society. The north and south districts have societies of their own, the Germans and Bohemians likewise; why should the west side English speaking physicians not have one? A large number of able, honorable and gentlemanly practitioners live in this section of the city and scarcely know each other. There is **no good fellowship, no harmony, no union and therefore no strength.** To remedy all that I took the initiative with the result that a society of enthusiastic men, about twenty in number, is the beginning. We could have doubled that number, but we are careful whom we take in. Already there are signs of a general shaking up of the west side physicians from their lethargy.

The conditions prevailing in some sections are horrible, defying description. The practice of medicine has sunk to a mere trade and every method, no matter how questionable has been resorted to, to "make more money."

A medico-pharmaceutical club exists on the west side. Physicians, dentists and druggists meet weekly for social purposes, but discuss occasionally scientific topics. It is of interest to know that a dentist, Dr. Nalperin, was the founder—and not a physician.

But recently one of the members of that body committed a breach of medical etiquette. The case was discussed at a recent meeting of the executive board of the West Chicago Society and I was instructed to write a letter to the secretary of that club, giving the facts. It is but just to state that the letter was seriously taken up and that the Society decided to take suitable action.

I am satisfied that were the members of our Society and others to **realize the importance of belonging to our State Society. A good many would join.** That the officers and myself will

do all in our power to aid you in your noble work of securing proper legislation, you need not doubt.

The West Chicago Medical Society will prove itself worthy of the honor conferred upon it by the State Medical Society.

Gustavus M. Blech, Official Reporter.

The names of the members of the West Chicago Medical Society are:

Drs. Emil D. St. Cyr, president; Oscar G. Wernicke, vice-president; George M. Silverberg, treasurer; Gustavus M. Blech, Secretary; F. W. Henkel, Arthur M. Shabad, Julius Abelio, S. Brownstein, Thomas Francis O'Malley, M. W. Kelleher, E. H. Lee, Davis Berkhoff.

Jo Daviess County Society—A Galena Galaday.

The majority of the members and their wives of the Society assembled in Dr. Godfrey's office, Galena, at 10 o'clock A. M.

From this place the Galena physicians took charge of the society and by previously arranged launches transported the whole number including the physicians' wives, daughters and sweethearts down the Galena river, thence into the Mississippi and south to Camp 19, where all was in readiness. Namely a well-fitted out cooking plant, dining hall, restaurant, bowling alley, shooting gallery and auditorium for the society meeting. Entertainment was provided for the ladies, and the society went into regular session at 1 P. M. A roll call showed the following members present: Drs. Godfrey, Stafford, Smith I. C., Gunn, Tyrrell, Hutton, Egan, Fowler, Eade, Smith, D. G., Bench, Weirich, Keller, Kreider, Smith, W. A., also the following visitors: Drs. J. C. Blair, Hazel Green, Wis.; Dr. J. W. Heustes, Dubuque, Iowa; Dr. Cleary, Galena, Dr. A. Grassau, Apple River; Dr. Jos. Godfrey, Lancaster, Wis; Dr. Howard (dentist) Galena.

Dr. S. G. Kreider of Lena was elected a member and the application of **Dr. Grassau of Apple River** was received. The report of the committee on Necrology was received and accepted.

A very interesting and instructing paper on **"Intestinal Disorders of Children,"** was read by Dr. Wm. Hutton of Elizabeth and was discussed by Fowler, Cleary, Godfrey and others.

The ladies in charge of the dinner then had all things in readiness and all did ample justice to the elegant spread, which consisted of all the necessaries, including meats, salads, ice cream and beverages of all description.

After dinner bowling and different games as well as boating on the river, etc., were engaged in.

At 3 P. M. the Society again reconvened and the discussion of Dr. Hutton's paper was continued.

The regular subject **"The Causes, Prevention and Treatment of Constipation,"** was then taken up and opened by Dr. Keller of Warren, Dr. Keller dwelt namely upon the electrical treatment of constipation and related some very interesting and successful work done by electricity in this disease. He also emphasized the good results obtained on hemorrhoids by the electric treatment. These results were also endorsed by Drs. Egan, Kreider and Godfrey. Considerable discussion followed on the **great relief obtained in Uterine Fibroid** by the electrical treatment.

The library question was then taken up. This had been recommended in the president's annual address at the last meeting and held over for consideration.

It suggested the plan of forming an association and list of all the different medical works owned by the various physicians of the society, and the appointing of a librarian. To which any member can apply for such books as appear on list and thereby have access to a very large library.

It was decided to form such a **library association,** and a committee to formulate plans, etc., was appointed.

The society adjourned to meet at Stockton, Oct. 31, 1901, after which different ammusements were enjoyed, bowling chiefly, of which Dr. Egan of Hanover, ran away with the belt.

This Camp 19 is a beautiful resort on an island in the Mississippi river, where all the pleasures of an outing can be obtained.

We dare say this was the largest attended society meeting since its organization. The number that participated was about 60 and the ride in the launches, a distance of about eight miles from Galena was an elegant treat. The return trip occupied two hours during which time the beautiful scenery and balmy breezes, as well as the music from the bugle horn, entertained and refreshed all on board. Galena was reached at sunset, when hearty good-bys were given and all regretted that the day was not longer or come oftener.

D. G. Smith, Official Reporter.

The Fulton County Medical Society held its 15th bi-monthly meeting at Cuba, April 9, President Shallenberger presiding.

Roll call found the following members present: Heise, Sutton, Hansen, Reagen, Strode, Coleman, Stoops, Snively, Rogers, Blackstone, Blackburn, Shallenberger and Ray.

The communication from Dr. Black relative to assisting in securing medical legislation was read and the following members donated $1.00 each for this purpose: Drs. Coleman, Strode, Blackstone, Snively, Reagen, Stoops, Blackburn, Sutton and Ray. Total of $9.00.

The following dues were collected: Dr. Strode, $2.00; Dr. R. S. Blackstone, $1.00; Dr. C. D. Snively, $1.00. Total, $5.00.

The president appointed Dr. Reagen, Coleman and Blackburn to arrange for the annual meeting in October next.

Drs. Sutton and Stoops suggested the idea of postponing the June meeting on account of the State and Military Tract meetings occurring so close together. Reagan moved to lay the picnic question on the table. Carried.

Reagan moved that the Fulton County Medical Society attend the State meeting in a body and to invite all Fulton county physicians in good standing to attend with them. Carried.

The secretary was instructed to notify all members and in the notice to request all members attending the Peoria meeting the first day

to meet the morning train of the second day at the Union Depot where we will form in line and march to headquarters.

Strode moved that the secretary produce ribbon badges with name of society and date of Peoria meeting and mail to each member with the notices. Carried.

PAPERS.

Dr. Strode gave a very interesting discourse on the **Reminiscences of a Country Doctor.** Among many other good things he said: The first and most important objective of a new doctor is his first obstetric case. My first case occurred in Bernadotte and I was called to it late one evening. It was the seventh confinement for the woman who was large and strong, weighing about 240 pounds. Labor was progressing fast and the patient was making all the noise she could, demanding that I relieve her at once. When immediate relief was not forthcoming she wanted to sit on my lap. This was a new idea to me, but I was willing to do my best and anything to satisfy the patient. As she settled down in my lap she threw her arms about my neck and there she hung until labor advanced so far that I had to place her on the bed and deliver the baby.

I had been practicing for about four or five years when I was called to deliver a woman of twins who had eleven months before given birth and eleven months after the twins I delivered her of another baby, making four babies in less than two years. The twins were born about eight o'clock in the evening and on my way home I was called into another place and by eleven o'clock had delivered my third baby for that evening. I started home again and was called to another place and by three o'clock in the morning had delivered my fourth baby for the night.

Every physician located near a stream has more or less trouble and danger on account of water. In early days it was much more so than at present for then there were very few bridges and many times a swollen creek or river has compelled me to drive many miles around to the desired point. Then I have attempted to avoid such long drives by fording and would get nearly drowned, loose my medicine case, etc. Spoon river cut quite a feature in my early practice. One winter when it was frozen I made several trips in my sleigh on the river to see a patient. Several teams were hauling logs on the ice at the same time on the same road. One Saturday, which was also Christmas, there were a large number of us skating when another fellow and myself skated a race and when about one hundred yards below the crowd down we went into ten or twelve feet of water. When I came up my head bumped against the ice and in my efforts to break the ice I went down again. When I came up this time the ice was thin enough to break when my head struck and being a good swimmer I broke the ice and swam to a point where the crowd threw an improvised rope made out of scarfs, coats and shawls to me, which I grabbed eagerly and they drew me out. When I arrived at the nearest house my clothes were frozen stiff.

One day a companion and myself started in a skiff down the river to the lake for a hunt. When we neared the railroad bridge we struck something that instantly overturned our boat. When I came up I was twenty feet away from the boat with my gun in my hand. My companion was clinging to the inverted boat. I swam to the shore, ran down the river a short distance where the current drifted the boat near enough for me to catch hold of it and draw it and my companion out. We then walked two miles to Duncan, warmed up, dried our clothes and went back to our boat and in getting it in the water I fell in again. We drew our boat out on dry land and gave up the hunt for that day.

I have had some very unpleasant experiences during pitch dark nights and bad roads. I was called one of these kind of nights to see a patient near Table Grove. A storm was coming up and I tried to postpone the trip until morning, but nothing would do but for me to go. The roads were so bad that I had to go horse back, so I saddled my horse and started right in the face of a raging storm. The rain fell in torrents and the lightning was one continous blinding flash. When the worst part of the storm had passed it was impossible to see at all except during a flash of lightning. During a flash I discovered I was about to plunge into a creek bank full. I hesitated a moment but at the next flash plunged in going entirely under water and it was extremely difficult to reach the oppoiste bank and get out. I was wet through and chilled. Two miles farther on I found my patient enjoying a classical attack of hysteria.

Every physician practicing in the country recognizes the importance of having a good horse, not only strong and fleet but one possessing good "horse sense." With a horse of this kind there quickly springs up an understanding between doctor and horse that is of inestimable value to the doctor. Some horses become so attached to their owners that some of their actions appear almost human. I have owned several horses of this kind.

One hot day I was riding along the dusty road when I came to a fine bathing hole in the creek. I tied my horse to a tree near by and plunged in. The horse commenced plunging and jumping about trying to get loose. I could not imagine what was wrong with him and hastily ran out of the water. He immediately quieted down and was perfectly satisfied. The horse thought I was in danger and I believe had he succeeded in breaking loose he would have come to my rescue.

The doctor here related his experience in delivering a woman of a monstrosity some time before. The parents were quite youthful, and first cousins. The foetus was full term and weighed 4 or 5 pounds, and was doubled sexed; head sloped downwards directly from forehead and covered with heavy bay hair. Eyes were large and glassy. Nose large and prominent. Lower jaw, back, arms and wrist were anchylosed. It lived from 2 A. M. until noon. The doctor then presented a pathological specimen in the way of a double pig excepting brain, eyes and mouth.

He then spoke for a short time on natural history relating his thrilling experience from the bite of a copperhead snake.

Dr. Heise gave notice that a resolution would be presented at the next regular meeting to abolish the February meeting and a meeting in June be created; also to change the date of the April meeting.

Adjourned for dinner.

1 P. M. visited Fraternity Hospital.

1:30 P. M. reconvened.

Dr. Strode's remarks were commented upon by Drs. Reagan, Coleman, Blackburn and others.

Dr. Coleman moved that Dr. Barton be invited to enter discussion of subjects. Carried.

Dr. Blackburn presented paper on **Treatment of Pneumonia in Infancy and Childhood.** Among many other things he said treatment confined exclusively to the air passages was very unsatisfactory. Great benefit was derived from the early use of aconite and a little later on digitalis and brucine added gave very satisfactory results. Veratrum may be given older children. For pain he used the infant anodyne of alkaloidal make in infants and gelsemium or codeine in older children. The intestinal tract should be cleaned out by small doses of calomel and maintained in an antiseptic condition by the use of zinc sulpho-carbonate. In the place of syrups he used bryonia, emetine, apomorphine for expectorants. For weak circulation, nitroglycerine. Considerable importance was attached to the local use of antiphlogistine early in the disease and later to remove it and use lard and turpentine with the cotton jacket. Confine diet to milk and broths.

In the discussion, Dr. Stoops claimed great disappointment in the use of muriate of ammonia, but good results followed the use of veratrum and strychnine.

Dr. Strode used veratrum considerable, but laid great stress on the use of aquafolata. Suggested the adult dose as 60 grains to 2 oz. of water, giving a teaspoonful of this every 1 to 4 hours. But no matter what treatment all cases occurring in infants under 2 months of age were fatal. He was disgusted with muriate of ammonia.

Dr. Coleman defended muriate or carbonate of ammonia, but said it had to be crowded, give 20 or 40 grs. of the former and 10 or 15 of the latter. Used counter-irritation early and hot poultice later.

Dr. Hanson relied on small doses of dover for infants and heroin in older children to control pain and restlessness; guiacol or creosote carbonate as expectorants and the cotton jacket but no poultice.

Dr. Snively received hearty commendation when he mentioned the old-time lobelia and capsicum poultice.

Dr. Heise recalled the importance of fresh air and clean alimentary tract. Poultices were good, especially in pleuro-pneumonia. Used veratrum in preference to aconite and was disgusted with the use of coal tar products. Had used anti-phlogistine locally in pleuro-pneumonia with satisfactory results. Also used cotton jacket, but was afraid to use cold bath.

Dr. Coleman added the soothing effects of steam inhalation.

Dr. Hanson from committee on medical legislation said the comittee had done nothing.

Dr. Heise moved that programs contain subject of papers.

Dr. Reagan moved that rules be suspended and that the secretary be instructed to cast vote of meeting in favor of Dr. Maud Rodgers as member of the society. Carried.

Secretary cast 12 votes, electing Dr. Maud Rodgers to membership.

Dr. Strode moved adjournment. Carried.

D. S. Ray, Official Reporter.

The Crawford County Medical Society met in annual session at Robinson, July 11, 1901, in the office of Dr. Meserve, at 2:00 P. M.

Members present: Drs. Voorheis, J. Weir, Meserve, Firebaugh, Taylor, Barlow, Price, McGowen, H. N. Rafferty, Hoskinson and L. J. Weir.

The chairman, Dr. T. N. Rafferty, being absent, Dr. Voorheis was elected president *pro tem.*

Minutes of previous meeting were read and approved. Secretary's annual report was then read.

Officers for the ensuing year were elected as follows: President, C. H. Voorheis; vice president, C. E. Price; secretary, L. J. Weir; treasurer, C. Barlow. Censors, A. G. Meserve, J. Kirk, J. S. Thompson.

The annual dues, 50 cents, were collected from each member present.

Dr. Barlow read an interesting paper on **Summer Diarrhoea in Children.** It was emphasized that mothers should be informed whenever opportunity offers how to feed children and take care of them and to not give them infected food. The doctor's first duty was considered to be to investigate and regulate the diet to fit the particular case and to clear out the bowel with syringe or calomel. An opiate was advised in some cases only and bismuth in nearly all cases. Subject was discussed by all members present.

Dr. Firebaugh reported an important case of **Impacted Fracture of the Thigh,** in which the diagnosis was very difficult. A general discussion of fractures followed, in which many practical points were made.

Dr. McGowen reported **a Case of Gunshot Wound** in which the shot were not removed and all went well though dirty clothing was evidently carried into the tissues with the shot.

A dozen other cases were reported and informally discussed.

Society adjourned.

L. J. Weir, Official Reporter.

Secretary's Annual Report, Including a Review of the Past Decade of the Society's Work, and Some Suggestions for the Future.

The Crawford County Medical Society has had six regular meetings this year. Total membership, 26; average attendance, 11; whole number of scientific papers, 13, besides reports of cases and discussions, and the social, get-acquainted part of our meetings has, as usual,

kept up a friendly, mutually helpful feeling among the physicians of the county, though more or less isolated they of necessity must be.

Among other things we have had a paper on **Preventive Medicine,** which impressed us with the wonderful advances made in preventing sickness and prolonging life; vaccination against smallpox, scientific prevention of typhoid fever, consumption, Asiatic cholera, malaria, etc. In the discussion it seemed to be the concensus of opinion that preventive medicine is more important even than curative medicine.

The subject, **"Intestinal Worms,"** was presented and discussed. Some of the practical points made were: That everything that is called worms is not worms and that real worms in the bowel is a very rare disease; that when a case does occur it should be treated with cleanliness. Cleanliness of everything that goes into the mouth, food, drink, playthings, etc. Calomel and santonin for round worms, the same with enemata for small seat worms, pumpkin or male fern for tape worm, with preceding preparation of the patient in all varieties.

"Acute Laryngitis" has been considered, a hot foot-bath, and a physic relieved the ordinary case if employed early. The importance of looking into all cases of sore throat for evidences of diptheria, was brought out in the discussion.

Diet in Typhoid Fever was the subject of an interesting paper which recommended milk given with a spoon, that curds in stomach will be small. Broths, egg-nog, farinaceous foods, etc., when milk causes flatulence or is disgusting, and water in abundance was insisted upon.

The **Consumptive** has received our attention. He should be told all about his disease that he may appreciate and assist in the management of his case. He must live out of doors and eat strong food. If his disease is not too much advanced and his purse is full he might move to Colorado or California. Quite a proportion of the cases get well here in this climate and a considerable number more might get well if they could and would regulate their mode of living continously, every detail of it, according to the advice of their physicians. The majority of the laity have the idea that if one learns that he has consumption he is going to die, and the doctor can do him no good in any way, therefore the indifference and neglect.

As one of the causes of **Interstitial Nephritis** was mentioned humid, changeable climate. Among symptoms hypertrophy of heart with increased blood-pressure, inactivity and irritability. Treatment recommended was climate, diet, habits and medicine.

"Treatment of Disease According to Nature" was presented in a paper replete with practical suggestions: Food, digestion, assimilation and elimination, i. e., metabolism, phagocytosis and anti-toxin formation, in other words nature's way of producing and preserving health, of preventing and curing disease, were taken as the basis or as suggestions for the doctor's efforts.

The importance of **Medical Examination for Life Insurance** was emphasized and its details discussed.

"Disease of the Ear" and **"Mountain Climates"** were thoroughly considered at our last meeting and are so fresh in our minds that they need no comment now. And last, but not least, the subjects and thoughts presented at this meeting.

Review of the past decade of the Society's work:

	No. of meetings.	Average attendance.	No. of papers.
Year ending July, 1901	6	11	13
" " 1900	6	11	12
" " 1899	5	10	9
" " 1898	6	12	15
" " 1897	5	10	10
" " 1896	2	12	5
" " 1895	4	11	11
" " 1894	3	12	8
" " 1893	3	9	5
" " 1892	1 and others not recorded.		

The eighteen or twenty physicians who attend these meetings as regularly as they possibly can and prepare papers receive incentives to observe, read and advance; are broadened, edified and the better qualified for their responsible duties in their communities. Sickness is prevented and patients are better advised and treated as a result of work done in this society. The five or six members who seldom attend certainly fail to appreciate the benefit they and their patients might receive by their improving their opportunities, too busy nor any other excuse excuses.

There are two or three regular physicians in the county who are not affiliated with the society at all. They absolutely neglect this privilege and shirk the duty they owe to themselves, to the profession and to their patrons. One or two in the enlightened county of Crawford claim to use medicines from one class of remedies only. Such claims to cultivate and use only forty acres of the million-acre-field of medicine is entirely too narrow a view to take. One should be ready and openly claim to use any medicine or appliance that he is convinced is useful in preventing, relieving or curing disease.

Some Suggestions for the Future.

Shall we plan and strive to continue the meetings of the Crawford County Society? or would it be better to give our efforts to, and receive benefits from, a district society comprising a definite territory, say two or three counties or a congressional district. In the twelve counties nearest ours there is but one county medical society, and that is in Wabash county, which contains the city of Mt. Carmel. So it is easy to see that we are in the front rank and when I consider the fact that nearly one-half of the counties in our great state have no county medical society I am glad my lot was cast in good old Crawford. The question stated can be answered in the affirmative without argument, before men who have for years experienced the edifying, socializing, mutually helpful influence of a county organization, and now that the whole profession of the United States is to be reorganized with the

county societies as the foundation stones of the medical house, it is our plain duty and privilege to assist in the reorganization and share the benefits, scientific and material, therefrom.

Are Any Changes Desirable in Our Present Method of Work?

One must be very chary in advising changes when the old plan is giving excellent results. A progressive man or a progressive society is never perfectly satisfied, however; if so, there would be no progress. One should be contented but not satisfied.

I venture to suggest for your consideration:

1st. That doctors from outside the county, professors in medical colleges, or men in high standing be at times invited to present papers at our meetings, affording a kind of post graduate course at home and bringing us in closer touch with those working in fields a little different from our own. The good to be derived from this might be mutual; we would get ideas and incentives to advance ourselves and the teacher could better familiarize himself with the needs of the country physician, and thus be better prepared to instruct him in his lectures, journals and books.

2d. I still believe in the advisability of meeting once in each of the different communities of the county. Some good people in my neighborhood have a very vague idea of what a "doctor's meeting" is, and sometimes fail to properly understand the circumstances when they send for me and I am away attending a medical society. The very presence in our town of twelve or fifteen leading, busiest physicians of the county would be very wholesome and their meeting and earnestly deliberating on how to manage sick folks and prevent disease would give out a very desirable impression among the laity. And further, each of us can get practical points by seeing how the other does business. I would like very much to attend a meeting at Flat Rock, Palestine or Oblong.

3d. The plan of having a banquet should not be dropped without further consideration. Dr. N. S. Davis fifteen years ago stated that the three objects of paramount importance to be accomplished by medical organization are: (a) The promotion of direct personal intercourse between physicians, by which mutual respect, personal friendship and unity of sentiment are greatly promoted. (b) The more rapid increase and diffusion of medical knowledge, scientific and practical; and (c) The developing, unifying, concentrating and giving efficient practical expression of the sentiments, wishes, and policies of the profession concerning educational, legal and sanitary welfare and the relation of the latter to the community as a whole. As the gathering of all the members of the profession, numbering many thousands, from so widely extended country as ours into a single society for personal intercourse is impracticable, the first of these leading objects can be only obtained by organization primarily into city, town, county and limited district societies, in which the necessary personal intercourse can be enjoyed without material expense or being placed beyond the reach of their patients. Let us have a banquet.

4th and last, but not least, I would suggest that the chair appoint each member of the society (which would of course include himself), as a committee of one with power to act, for the purpose of securing interesting lectures, clinics, papers and case reports for our meetings and in every way and at all times be willing and ready to further the interests of the Crawford County Medical Soicety.

Obituary.

Dr. Katherine Miller of Lincoln, Secretary of the Brainerd District Medical Society for many years, died at the Mary Thompson hospital in Chicago, aged 45 years. Dr. Miller in addition to her medical practice, in which she was eminently successful, took an active part in political, church and school work. Her body was cremated and brought to Lincoln for interment.

Dr. Orlando Mitchell died of Bright's disease at his home in Marshall, Clark Co. Ill., April 5, 1901. He was 45 years old and had been in active practice since 1878. He was a son of Dr. J. D. Mitchell of Clark County, who died several years ago. Both were members of the Aesculapian Society of the Wabash Valley.

Dr. Frank W. Roberts died at Logan, Edgar Co. Ill., March 29, 1901, of Hemorrhagic smallpox, he had been treating the modified smallpox prevailing at that time and was not protected by vaccination.

Deaths and Change of Address.

DEATHS.

(Furnished by the State Board of Health.)

Bond, E. J., in Ord, Nebraska, July 17th.
Bolles, Hiram O., in Springfield, August 8th.
Clancy, Thomas J., in Scales Mound, July 29th.
Case, Willard P., in Chicago, July 19th.
Hoyt, Leslie M., in Chicago, July 3d.
Keith, Ernest W., in Chicago, Aug. 1st.
Lemoine, Edwin S., in St. Louis, Mo., July 17th.
Miller, Adam, in Chicago, July 29th.
Miller, Katherine, in Chicago, August 1st.
Ramsey, George D., in Xenia, July 18th.
Read, N. S., in Virginia, August 11th.
Stookey, Lyman T., in Belleville, August 2d.
Tetrick, Amos, in DuQuoin, August 10th.
Wright, David W., in Fairmount, July 20th.
Welch, John H., in Beecher City, July 22d.

CHANGES OF ADDRESS.

(Furnished by the State Board of Health.)

CHANGES IN CHICAGO.

Abbey, C. D., 821 W. 47th st. to 6913 Stewart av.
Ainsworth, H. H., 433 to 724 Flournoy st.

Akins, W. T., 13 Harrison st. to 367 Wabash av.
Aldridge, James L., 27 to 106 43d st.
Allen, Frances M., 333 41st st. to 4059 Prairie av.
Allen, Henry C., 100 to 103 State st.
Allport, Henry W., 92 to 100 State st.
Anderson, Nels, 866 W. VanBuren st. to 31 Washington st.
Anderson, W. J., 34 Washington st. to 409 W. Fullerton ave.
Anker, Ibnsina C., 481 W. Madison st. to 1004 51st st.
Atkinson, Horatio N., 3724 Madison ave. to 6303 Wentworth ave.

Beard, C. G., 2259 Calumet av. to 452 49th st.
Beck, L. K., 3104 S. Park av. to 260 54th st.
Beihm, Joseph F., 2437 Dearborn ave. to 4023 Wabash ave.
Buechner, F. E. A., 1538 35th st. to 416 North av.
Balinger, J. R., 627 Grand ave. to 682 W. Division st.
Baumann, Frederic, 703 Jackson boul. to 606 VanBuren st.
Beebe, Albert G., 69 State st. to 103 State st.
Bailey, Wesley G., 129 S. Franklin ave. to 5633 W. Superior st.
Baker, Charles W., Saratoga Hotel to 617 LaSalle ave.
Baker, Frank W., 100 State st. to 4141 Grand boul.
Baker, H. L., 653 W. 12th st. to 380 S. Kedzie av.
Baldwin, A. E., 826 W. Adams st. to 34 Washington st.
Ballard, C. N., 5 Blue Island ave. to 100 State st.
Barber, Gideon L., 31 Washington st. to 9151 Commercial ave.
Barcal, Edward J., 1190 N. Maplewood ave. to 43 McReynolds st.
Barclay, W. A., 133 Clark st. to 1020 Wilcox av.
Barker, Ernest S., 238 to 279 LaSalle ave.
Barnes, C. L., 576 LaSalle st. to 293 S. Lincoln st.
Baskette, H. W., 59 State st. to 296 N. State st.
Batcheller, W. B., 1374 to 1630 35th st.
Bates, Homer O., 7 Blue Island ave. to 168 S. Halsted st.
Bates, Laura C., 7 Blue Island ave. to 198 W. Jackson boul.
Beaudry, John S., 428 W. 71st st. to 7047 Princeton ave.
Beck, John C., 118 to 126 Oak st.
Becker, Wm. F., 1086 W. Harrison st. to 928 W. Jackson boul.
Beebe, J. E., 100 State st. to 2668 Magnolia ave.
Beedy, Lora L., 100 State st. to 529½ W. Jackson boul.
Beedle, Herbert D., 1370 to 1364 W. 103d st.
Behrendt, Arthur J., 723 Elston ave. to 242 W. North ave.
Bell, A., 4212 Union ave. to 5850 S. Halsted st.
Bell, Edgar S., 103 State st. to 3912 Cottage Grove ave.
Beneventi, R. B., 187 to 193 N. Halsted st.
Bennett, Harry F., 100 State st. to 571 W. Madison st.
Bennett, Wm. A., 2901 State st. to 2901 Wentworth ave.
Berger, Gustavus F., 907 to 911 Lincoln ave.
Bergeron, Victor A., cor Ogden and Turner aves. to 817 S. Sawyer ave.
Besharran, John H., 3030 to 3000 Indiana ave.
Bettman, Boerne, 135 VanBuren st. to 2601 Kenmore ave.
Betz, Jonathan C., 819 W. Harrison st. to 909 W. North ave.
Bickerdike, Richard J., 2058 Elston ave. to 287 Lincoln ave.
Bieringer, Wm. A., 1903 Milwaukee ave. to 346 North ave.
Bingley, M. Arista, 232 Milwaukee ave., to 325 W. Chicago ave.
Blanck, Elise W. S., 11534 to 11336 Milwaukee ave.
Boaz, Edmund A., 395 to 382 N. Wells st.
Bockins, F. B. E., 1218 to 1225 Milwaukee ave.
Borland, L. C., 31 Washington st. to 635 Ogden ave.
Borter, F. X., 430 State st. to 96 N. Wells st.
Bottlik, Louis, 287 W. 12th st. to 420 S. Halsted st.
Bowens, Bruce T., 1628 State st. to 2408 Dearborn st.
Bowers, C. E., 78 State st. to 2315 N. 44th ave.
Boyd, Benj. Y., 209 State st. to Revere House.
Bradley, John J., 3543 W. 84th st. to 7017 Normal ave.
Breese, Ambrose, 153 Belmont ave. to 232 Lincoln Place.
Briney, W. F., 182 State st. to 187 Dearborn st.
Brix, D. John, 6316 to 6327 Stewart ave.
Brown, Edna W., 269 Lincoln ave. to 606 Burling st.
Brown, Edward M., 592 W. VanBuren st. to 254 Ashland boul.
Brown, Edward B. L., 5825 Drexel ave. to 6722 Kimbark ave.
Brown, George L., Cook County Hospital to 4300 Cottage Grove ave.
Brumond, Diedrich A., 6100 Wright st. to 6100 Normal ave.
Brydges, James C., 800 W. 59th st. to 59 State st.
Buchanan, L. M., 2643 Monroe av. to 193 41st st.
Buckley, Sara S., 100 State st. to 301 56th st.
Buckner, Wm. A., 3024 Dearborn st. to 2842 Armour ave.
Burgess, Sarah F. K., 165 S. Wood st. to 202 S. Robey st.
Burrows, Daniel E., 3429 S. Wood st. to 3246 State st.
Burson, S. W., 67 to 112 Clark st.
Bush, Geo. C., St. Elizabeth's Hospital to 406 S. Albany ave.
Bussey, Geo. N., 604 to 550 Wilson ave.
Butlewicz, Kasimir A., 581 Milwaukee ave. to 251 Wabansia ave.
Butler, T. O., 31 Flournoy st. to 216 Aberdeen st.
Butts, J. B., 748 W. 12th st. to 324 Ogden ave.
Cupler, Ralph C., Chicago Hospital to 119 W. 24th st.
Cady, Grosvnor B., 108 Wabash ave. to 108 Washington st.
Calloway, W. L., 65 Randolph st. to 130 Dearborn st.
Campbell, Amos W., 240 Wabash ave. to 134 Madison st.
Campbell, Lillian, 763 Estes av. to 100 State st.
Campbell, Ralph R., 100 State st. to 204 Dearborn st.
Carlin, Peter S., 399 N. Wood st. to 58 Oak st.

Carstein, John A., 1295 W. Ravenswood Park to 550 Wilson ave.
Case, Edward N., 340 to 325 Dearborn st.
Cassady, Geo. W., 196 Washington st. to 121 Hamburg st.
Castor, H. C., 184 N. State st. to 190 Dearborn ave.
Challoner, Robert, 1748 Michigan ave. to 2443 N. Hermitage ave.
Chapman, Chauncey F., 833 Washington boul. to 943 W. Madison st.
Cheney, H. W., 6303 Monroe ave. to 369 63d st.
Cheney, Wm. W., 1254 to 123 Michigan ave.
Chichester, J. Gemill, 452 49th st. to Chicago Hospital.
Christensen, E., 59 State st. to 737 W. Madison st
Christopher, Walter S., 406 Center ave. to 508 Dearborn ave.
Churchill, Frank S., 583 E. Division st. to 103 State st.
Clancy, Marshall G., 748 to 535 W 61st st.
Clendenning, Thos. C., 1541 to 1713 W. 63d st.
Coates, Wm. E. Jr., 2231 W. Congress st. to 417 S. 44th ave.
Cole, Samuel, 103 State st. to 3305 Vernon ave.
Collins, Ellen E., 46 37th Place to 4102 Wabash ave.
Collins, Lawrence E., 4830 Madison ave. to 481 Wabash ave.
Colwell, Nathan P., 203 S. Western ave. to 100 State st.
Connell F. G., 209 LaSalle ave. to 103 State st.
Converse, E. D., 92 State st. to 4507 Lake ave.
Cooke, Jean M., 726 W. Adams st. to 394 Marshfield ave.
Cory, A., 849 N. Kedzie av. to 1049 W. North av.
Cory, Edwin V., 4444 St. Lawrence ave. to 4236 Wabash ave.
Cottlow, B. A., 4701 Cottage Grove ave. to 4797 Evans ave.
Coulter, J. H., 429 Warren ave. to 103 State st.
Coy, A. E., 2901 Wallace st. to 5961 Prairie ave.
Craig, E. Willard, 985 N. Halsted st. to 93 Seigel st.
Craig, J. D., 80 Madison st. to 821 Farwell ave.
Craven, William C., 125 to 84 LaSalle st.
Crowe, Thos. S., 260 Webster ave. to 131 Dearborn ave.
Cunningham, E. M., 111 Walton Place to 1202 Flournoy st.
Cunningham, N. M., 499 63d st. to 308 60th st.
Curran, Patrick, 2197 N. 42d Court to 564 W. Wrightwood ave.
Cutrera, P., 187 N. Halsted st. to 145 Grand ave.
Dornbusch, Henry W., 1044 N. 41st ave. to 1051 N. 42d ave.
Donkle, Alfred D., 518 W. Adams st. to 327 Bissell st.
Duncan, Andrew B., 69 State st. to 2108 Lexington st.
Duncan, David, 69 State st. to 59 State st.
Dale, Henry C., 167 to 130 Dearborn st.
Daley, Timothy A., 100 State st. to 3738 S. Halsted st.
Damiani, Joseph, 220 Milwaukee ave. to 174 N. Halsted st.
Darcy, Hugh T., 109 53rd st. to 312 91st st.
Davenport, Isabelle M., 17 VanBuren st. to 1240 E. Ravenswood Park.
Davis, Edgar G., 100 State st. to 663 W Jackson boul.
Davis, Edward G., 2501 N. Hermitage ave. to 1889 Sheridan Road.
Davis, Harriette H., 6428 Greenwood ave. to 7076 Washington boul.
Dearlove, Mary A., 972 W. Jackson boul. to 59 State st.
Deming, Henry H., 100 State st. to 4356 Greenwood ave.
Denison, Ed. L., 5256 Fifth st. to 5860 State st.
Dennis, Earl J., 112 Clark st. to 59 State st.
De Pew, Harry G., 112 Clark st. to 9140 Commercial ave.
Detrana, Joseph M., 318 to 277 Milwaukee ave.
Dewing, Wm. H., Lexington ave. and 62d st. to 431 Michigan ave.
Dickinson, Stanley B., 5631 W. Ohio st. to 5411 W. Indiana st.
Dixon, Guy B., 283 S. Leavitt st. to 872 W. Jackson boul.
Doane, Philip P. S., 387 N. State st to 583 Division st
Doederlein, Theodore J., 985 N. Halsted st. to 356 Webster ave.
Dorsey, Nicholas J., 519 to 412 LaSalle ave.
Dracess, Frederic, 108 Washington st. to 420 W. 61st st.
Driscoll, John J., 6216 Wentworth ave. to 6408 Yale st.
Duncan, Adelaide C., 603 W. 63d st. to 6058 Kimbark ave.
Dunn, Elizabeth H., 5624 Ellis ave. to 5523 Monroe ave.
Fernow, J. A. W., 752 Jackson boul. to 2330 Michigan ave.
Ford, F. C., 69 to 92 State st.
Fuller, Chas. G., 69 to 100 State st.
Fantus, Bernard, Cook County Hospital to 635 Jackson boul.
Goldsmith, Alexander A., 3749 Vincennes ave. to Cook County Hospital.
Gulick, Walter V., 200 Ashland boul. to 290 Belden ave.
Green, Anne J., Hahnemann Hospital to 65 Bryant st.
Geiger, Arthur H., German Hospital to 101 Clyburn ave.
Gumm, Albert G., 2358 Indiana ave. to 302 Garfield boul.
Healy, Wm. Jr., 1197 Jackson boul. to 682 Sheridan Road.
Howarth, Ora O., Hahnemann Hospital to University of Chicago.
Heath, Frederic, 2155 Calumet ave. to 31 Washington st.
Irish, H. E., 2787 N. Robery st. to 627 Grand av.
Kannabel, Allen B., Cook County Hospital to cor. Calumet ave and 58th st.
Kjellberg, A. Emil, 69 State st. to 57 Washington st.
Kellberg, Carl E., 69 State to 65 Randolph st.
Lewis, Nelson H., 494 Dearborn ave. to Auditorium bldg.
MacKay, Emma S., 281 Warren ave. to 6842 Normal ave.
Maclay, Otis H., 2601 Calumet ave. to Provident Hospital.
Morton, Frank R., 229 LaSalle ave. to Cook County Hospital.

Malone, Geo. B., 126 State st. to 146 N. Clark st.
Miller, A. Merrill, 3246 Wabash ave. to Michael Reese Hospital.
McCullough, John R., 69 to 59 State st.
Messinger, E. D., 69 State st. to 179 Randolph st.
Motter, Thomas I., 69 to 100 State st.
Perkins, E. D., 1436 Monroe st. to 627 W. 61st st.
Peiro, Francis L., 69 State to 78 State st.
Richardson, F. M., 370 Wood st. to 59 State st.
Sandy, Thomas H., 118 Ashland boul. to 2108 Wilcox ave.
Schram, Abraham W., 4304 Grand boul. to 3122 S. Park ave.
Schoenfeld, Chas. J., Michael Reese Hospital to 181 W. Madison st.
Simmons, Howard L., 69 to 100 State st.
Worthington, Major H., 2346 Calumet ave. to Wesley Hospital.
Wellen-Pleth, Vera W., 750 to 731 W. North av.
Watry, Joseph, 69 to 59 State st.
Woodbury, Wm. H., 69 to 92 State st.
Wall, Chas. D., U. S. Marine Hospital, to Cor Blue Island ave. and Taylor st.

CHANGES FROM CHICAGO.

Adams, Fred M., to Lanark.
Blatlock, Samuel S., to Vergennes.
Coughlin, Francis J., to Aurora.
Daily, R. T., to Kickapoo.
Fitch, T. D., to Quincy.
Geyer, Clarence W., to Aurora.
Ghent, Monroe N., to Carterville.
Gilbert, Alson R., to Elwood.
Gould, Chas. W., to Dundee.
Herdien, Elmer F., to Galva.
Hogan, Earl A., to McLeansboro.
Lofgren, Emil, to Rockford.
Messinger, Celestia D., to Lake Bluff.
Martin, Frederick H., to Edgerton, Wis.
Sheldon, Walter H., to Vienna, Austria.
Tracy, E. E., to Joliet.
Watterson, Walter H., to N. Chicago.
Whitmore, Eugene R., to Washington, D. C.

CHANGES TO CHICAGO.

Abbott, Geo. D., to 128 Dearborn ave.
Alcorn, Archibald J., to 1611 Armitage ave.
Alderson, John J., to 264 S. Halsted st.
Allinder, Daniel G., to 7150 Emerald ave.
Bick, John M., to 509 Cleveland ave.
Baccus, Victor J., to 281 Oak st.
Banning, E. P., to 100 State st.
Barrett, Edward J., to Palmer House.
Barryte, E. L., to 256 Belmont ave.
Beers, Lila E., to 3646 Wabash ave.
Bennett, Robert F., to 4327 Indiana ave.
Berard, Henry W., to 1107 W. Chicago ave.
Blomgren, Chas. E., to 1450 Belmont ave.
Bond, John H. R., to 153 53d st.
Boulter, Sarah E., to 347 Fullerton ave.
Boyd, Laura E., to 824 Wilson ave.
Clark, Fay T., to cor. Wood and York sts.
Caldwell, Henry J., to 944 S. St. Louis ave.
Carver, Simon C., to 101 Laughlin st.
Chamberlin, Wm. E., to 324 57th st.
Clendenen, Irving, LaGrange to 70 State st.
Collier, Amy W., to 3338 W. 64th st.
Conroy, Althony F., to 167 Dearborn st.
Crary, Eva E., to 3514 W. 62d Place.
Crowley, John F., to 601 W. Garfield boul.
Curtis, Wilbur F., to 9244 Cottage Grove ave.
Diamond, I. V., to 294 W. Division st.
Drozdowicz, Sucher, to 3315 S. Morgan st.
Howell, Elmer E., to 249 Dearborn ave.
Leach, Roy B., Joliet to 838 W. 64th st.
Lyon, Wm. M., to 5000 State st.
Rubin, Geo., to 92 State st.
Stevens, Branwell F., to 100 State st.
Thomson, Orion K., to 2508 Indiana ave.
Wiley, Edwin H. Jr., Charleston to Cook County Hospital.
Walker, Robert J., Aurora to 258 64th st.

CHANGES FROM ILLINOIS.

Barto, Jay H., Waverly to St. Louis, Mo.
Clements, Geo. E., Springfield to Peru, Ind.
LaRue, R. E., Mound City to Owensboro, Ky.
Looney, John T., Vienna to Indian Territory.
O'Malley, Thos. J., Joliet to ———

CHANGES TO ILLINOIS.

Brelsford, Joseph, East Land, Tex. to Onarga.
Burkhardt, Chas. F., to Fairland.
Hill, Columbus C., Luray, Mo. to Manito.
Laudermilch, C. E., to Geneva.
Mershon, Glenn E., St. Louis, Mo. to Mt. Carroll.
Phipps, W. C., to Medora.

CHANGES IN ILLINOIS.

Athon, Wm. L., Lincoln to Marshall.
Burnham, A. F., Jacksonville to Mason City.
Birch, Edward L., Robinson to Hospital.
Buswell, Clark A., Polo to Elgin.
Beattie, Andrew B., Anna to Red Bud.
Craig, James A., Blackburn to Farmersville.
Crouch, Elmer L., Jacksonville to Menard.
Davieson, Jessie M. M., Pekin to Eureka.
Foster, Walter E., Elgin to Spring Grove.
Foster, Thos. R., Hospital to Watseka.
Frisbie, Robert L., Baileyville to Lincoln.
Frank, Wm. E., Itaska to Waggoner.
Gillette, Philip F., Stillman Valley to Elgin.
Golden, John J., Quincy to Xenia.
Gould, Chas. W. Jr., Dundee to Huntley.
Harvey, John G., Blue Mound to Decatur.
Higgins, Richard T., Menard to Vandalia.
Heffran, Michael T., Shelbyville to Decatur.
Hill, Matthew M., to Springfield.
Jenks, F. H., Elgin to Aurora.
Jackson, Flora M., Shelbyville to Danville.
Jackson, John H., Shelbyville to Danville.
Kell, Omar A., Danvers to Hospital.
Kaesar, Albert F., Highland to Bloomington.
Landon, D. M., Burton to Quincy.
Lee, Arthur M., Carbondale to Menard.
Lane, Geo. H., Menard to E. St. Louis.
Montgomery, C. L., Bushnell to Blue Mound.
McRaven, P. H., McClure to Anna.
McLean, Samuel H., Hillsboro to Lincoln.
Porter, Denis W., Blue Mound to Decatur.
Ronalds, Harold E., Grayville to West Salem.
Raymond, Elias H., Stonington to Mt. Auburn.
Rinehard, Bert M., Flora to Chadwick.
Robbins, Joseph, Quincy to Jacksonville.
Sanders, David R., Jonesboro to Anna.
Solliday, M. H. to Owaneco.
Songer, Walter E., Carlyle to Menard.
Trigg, Franklin E., Waggoner to Roanoke.
Wilhelmy, S., Decatur to Harristown.
Winslow, Frederick C., Jacksonville to Peoria.
Willingham, R. H., Lamb to Elizabethtown.

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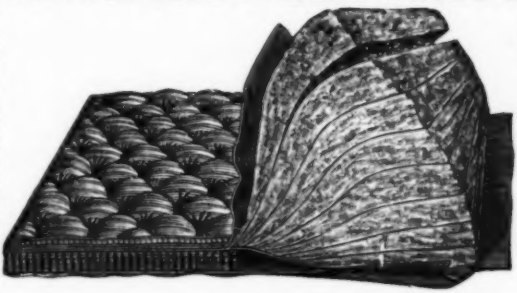

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